



User's Guide



**All you need to know about
the FRACO hydraulic
elevating platform**

FRSM-8000

Technical	Model	Date of issue	Bulletin n°
	FRSM8000, ACT4, ACT8, 20K	2010-03-30	U-G-0012-A

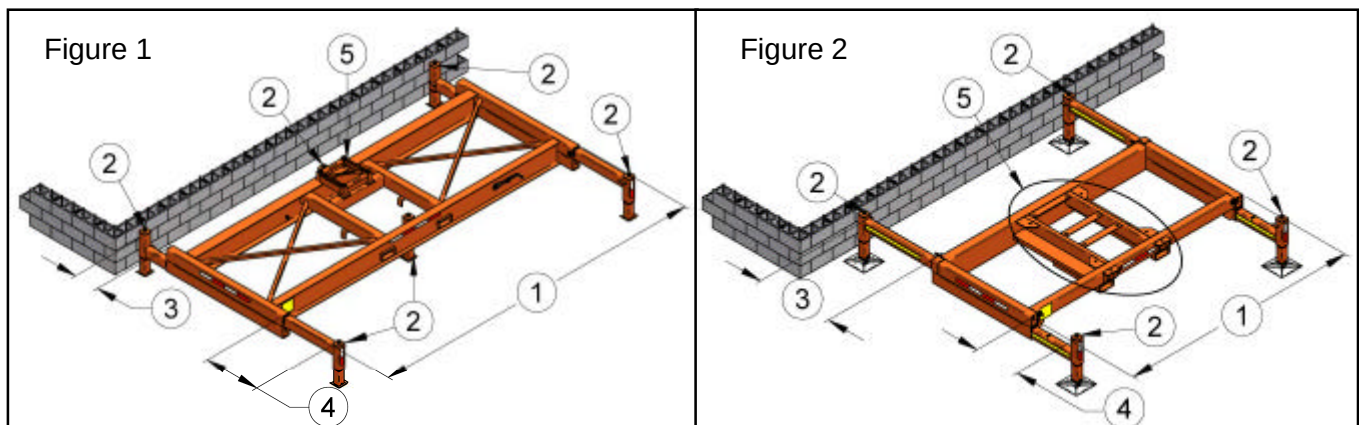
Utilization specifications concerning the universal freestanding base and the freestanding base specific to each type of platform

To be added to FRACO platforms User's manual for models indicated above

Please read the following technical service bulletin carefully and insert it in the appropriate FRACO user's manual.

Characteristics specific to the FRSM 20K freestanding base (#14030053) and universal freestanding base (# 14030109). Corresponding authorized freestanding heights and opening specifications of the stabilizers.

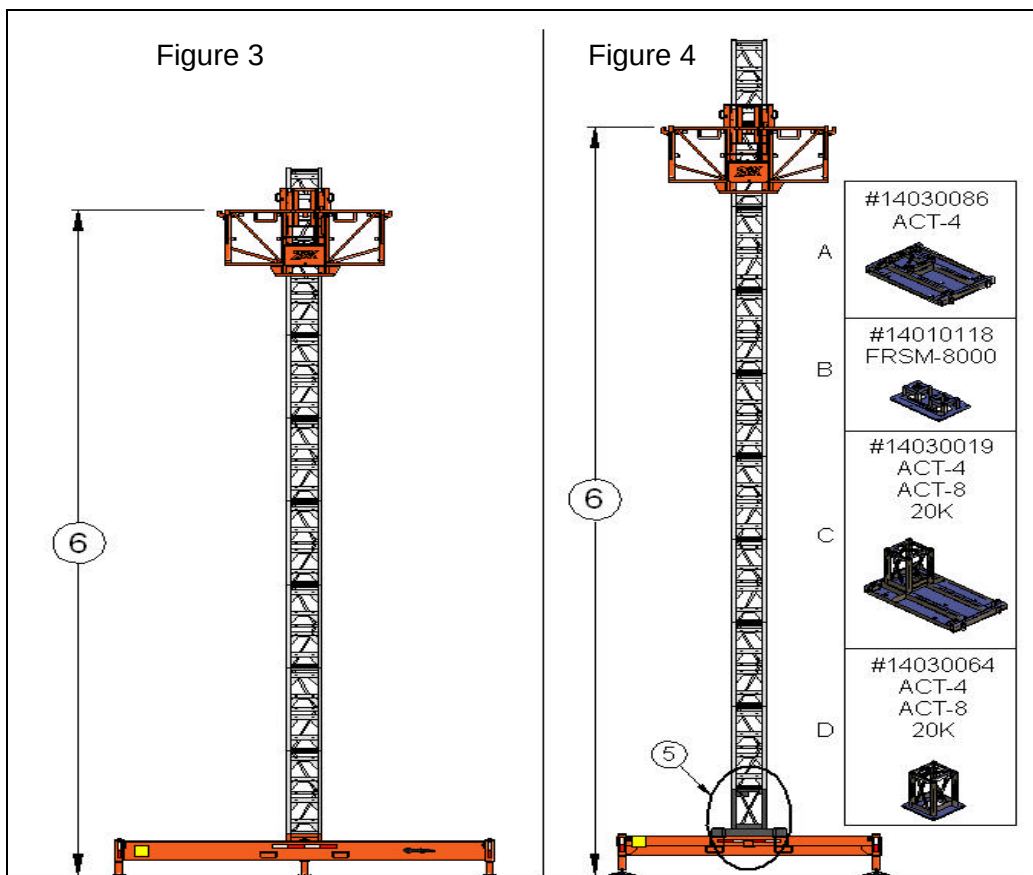
ITEM #	Description	FRSM 20K freestanding base #14030053 (figure 1)			Universal freestanding base #14030109 (figure 2)			
1	Width	215" (5.46m)			150" (3.81 m)			
2	Number of jacks	6			4			
3	Front stabilizers	Extendable up to 16" [0.4 m]			Extendable up to 48" [1.2m]			
4	Rear stabilizers	Extendable up to 36" [0.9m]			Extendable up to 28" [0.7m]			
5	Usable with	ACT4	ACT8	20K	FRSM8000	ACT4	ACT8	20K
6	Freestanding heights	25'-0" [7.62m]	40'-0" [12.2m]	40'-0" [12.2m]	35'-0" [10.6m]	60'-0" [18.3m]	45'-0" [13.7m]	45'-0" [13.7m]
7	Use with Ground base Model	Not Required	Not Required	Not Required	B	A, C, D	A, C, D	A, C, D



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Freestanding heights specifications

1. The freestanding height is determined by the distance measured between the bottom of the jacks (ground) and the top of the platform floor. (see figure 3 and 4)
2. See figure 4 or the appropriate user's manual to identify the base required for the type of elevating unit used.
3. Refer to the appropriate user's manual for the instructions regarding proper installation and dismantling procedure for each specific unit.



ITEM #	Description	FRSM 20K freestanding base #14030053 (figure 3)			Universal freestanding base #14030109 (figure 4)			
		ACT4	ACT8	20K	FRSM 8000	ACT4	ACT8	20K
5	Usable with							
6	Freestanding heights	25'-0" [7.62m]	40'-0" [12.2m]	40'-0" [12.2m]	35'-0" [10.6m]	60'-0" [18.3m]	45'-0" [13.7m]	45'-0" [13.7m]
7	Use with base Model	Not Required	Not Required	Not Required	B	A, C, D	A, C, D	A, C, D

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Stabilizer opening specifications

1. **The front and rear stabilizers of every freestanding base (specific to each type of platform) must be extended to their maximum in order to reach the maximum heights and load capacities specific to each type of equipment in freestanding mode (*except the universal freestanding base*). (see chart below)**
2. **When using the universal freestanding base**, the front and rear stabilisers must be extended to a minimum of 1'-9" (533.4 mm). This measure is designated by the distance between the face of the stabiliser insertion tube and the jacks. (see figure 5. detail 1).
3. For any situation and for each type of platform, the planking area must never exceed the front stabilisers of the freestanding base. (see figure 5, detail 2)

Type of platform	Maximum height on platform specific freestanding base	Maximum height on universal freestanding base	Maximum authorized load
FRSM-1500	35'-0" (10.7 m)	NA	1500 lbs (680 kg)
FRSM-3000	35'-0" (10.7 m)	NA	3000 lbs (1360 kg)
FRSM-8000	35'-0" (10.7 m)	35'-0" (10.7 m)	8000 lbs (3630 kg)
ACT-4	60'-0" (18.3 m)	60'-0" (18.3 m)	4000 lbs (1815 kg)
ACT-8	45'-0" (13.7 m)	45'-0" (13.7 m)	8000 lbs (3639 kg)
20K	40'-0" (12.2 m)	45'-0" (13.7 m)	10 000 lbs (4535 kg)

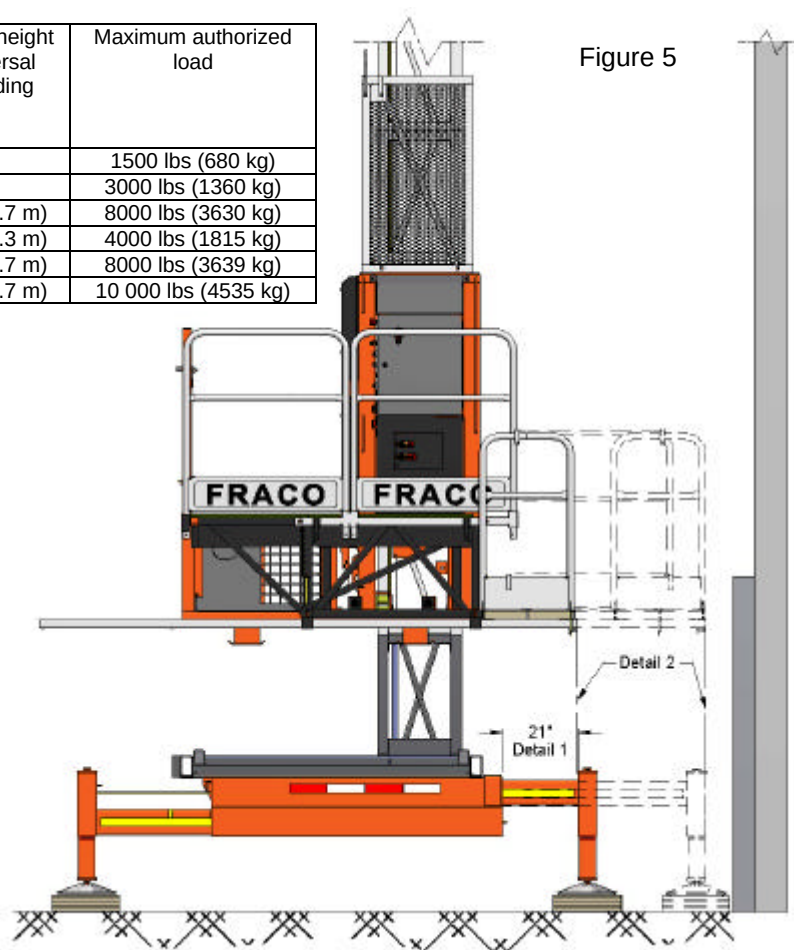


Figure 5

Failure to comply with the instructions as stated in the user's manual or any documentation produced by the manufacturer can lead to material damages, serious injuries and/or even death.

For further information's or any questions please contact:

Jean-Sébastien Lasnier
 Telephone: 450-658-0094
 Toll Free: 800-267-0094
 Fax: 450-658-8905

Technical	Model	Date of issue	Bulletin n°
	20K, FRSM-8000, ACT-8	2010-04-12	U-T-0008-A

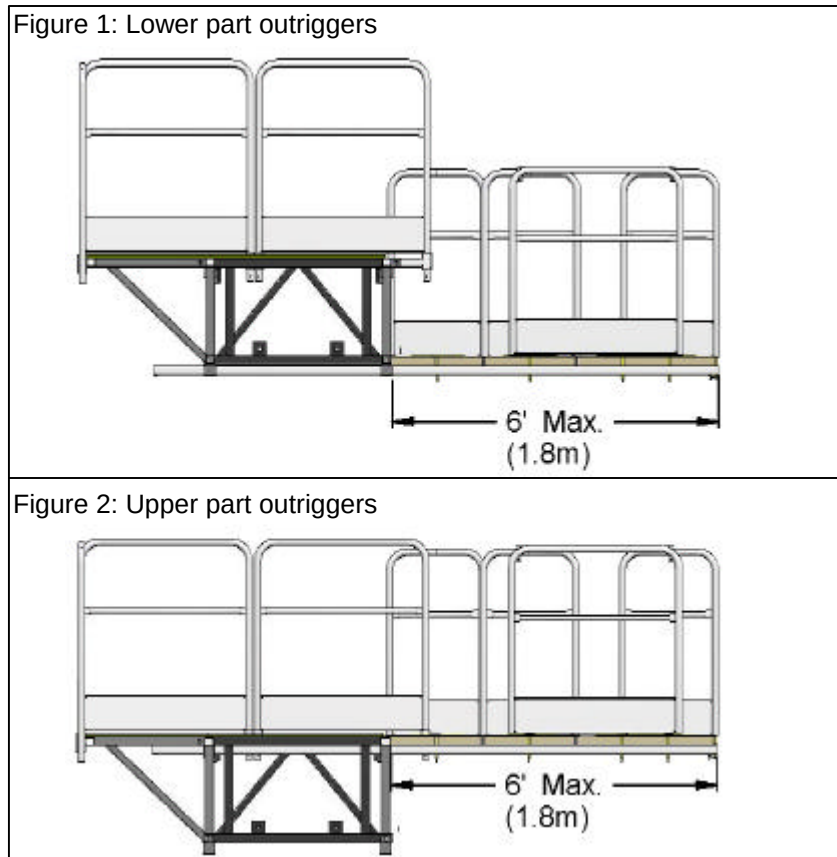
Specification for utilisation of 10'-6" (3.2m) outriggers #19010045

Add to FRACO platforms User's Guides for models indicated above

Please read the following carefully and insert in your Fraco User's Manual:

When using 10'-6"(3.2m) outriggers, the maximum length on which you can work on is 6' (1.8m).

Complete assembly view of 10'6" outriggers



Note:

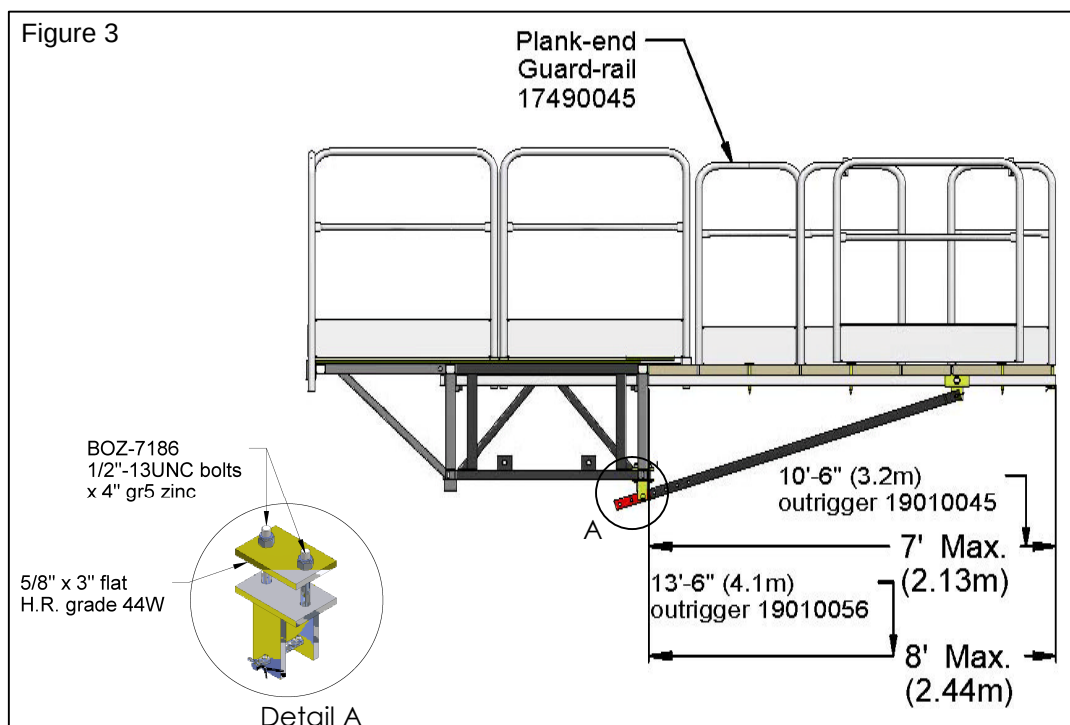
1. The distance is designated by the measurement from the face of the platform to the very end of the outrigger. (See Figure 1 and 2)
2. This distance applies when outriggers are installed at either the lower or upper part of the platform. (See Figure 1 and 2)
3. When using 10'-6"(3.2m) outrigger to their maximum length of 7' (2.1m), you must use accompanying parts found in the # 19510073 kit and install it according to the user's manual. The outriggers must be installed in the upper part of the platform.

Technical	Model	Date of issue	Bulletin n°
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Important change when using the outrigger kit #19510073

1. When using 10'-6" (3.2m) outriggers to their maximum deployment of 7'-0" (2.1m), the utilization of the outrigger kit 19510073 (see figure 3) is required and the installation must be done in accordance with the procedure presented in the user's manual.
2. When using 13'-6" (4.14 m) **the maximum distance which it can be extended is now of 8'-0" (2.44m)** (see figure 3, detail A).). The utilization of the outrigger kit 19510073 (see figure 3) is required and the installation must be done in accordance with the procedure presented in the user's manual.

Complete assembly view of 10'6" outriggers and 13'6" with outrigger kit #19510073



Important:

1. The forged steel (see figure 3 Detail A) 3/8" x 3" x 4 1/2" (#28018111) of the outrigger special swivel tie (# 20490555) **must be replaced by a forged steel 5/8" x 3" x 4 1/2" H.R. grade 44W (# 28026794)**.
2. The 2 bolts BOZ-7186 (1/2"-13 UNC x 3-3/4" gr5 zinc) **must be replaced by 2 bolts BOZ-7190 (1/2"-13 UNC x 4" gr 5 zinc)**. (see figure 3, detail A).
3. For distance exceeding 8'-0" (2.44 m) on the face of the platform, utilization of reinforced working platform (#20990280) is required.

Failure to comply with the instructions as stated in the user's manual or any documentation produced by the manufacturer can lead to material damages, serious injuries and/or even death.

For further information or any question please contact:

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 Toll Free: 800-267-0094
 Fax: 450-658-8905

Technical	Model	Date of issue	Bulletin n°
	20K, FRSM-8000, ACT-8	2007-02-01	U-T-0005-A

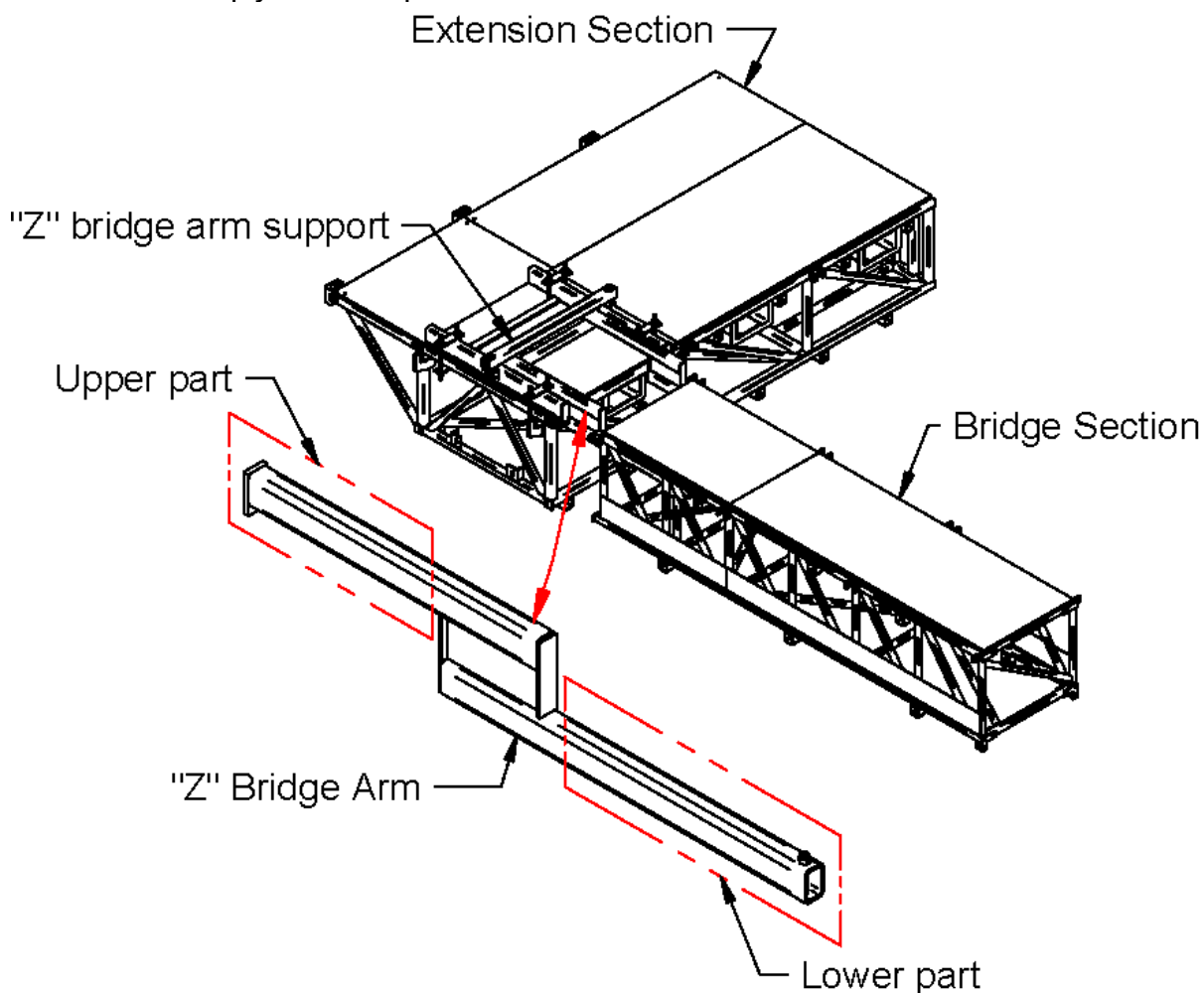
Installation procedure for "Z" Bridge Arm

Add to FRACO platforms User's Guides for models indicated above

Please read the following carefully and insert in your Fraco User's Guides:

Complete assembly view

If you are already using these bridge arm, check all your jobs sites to see if the installation comply with this procedure.



Note: all set-up using "Z" bridge arm must be approved and authorized by Fraco.

For further informations or any questions please contact:

Jean-François Laurin T.P. or Jean-Sébastien Lasnier T.P.

Telephone : 450-658-0094

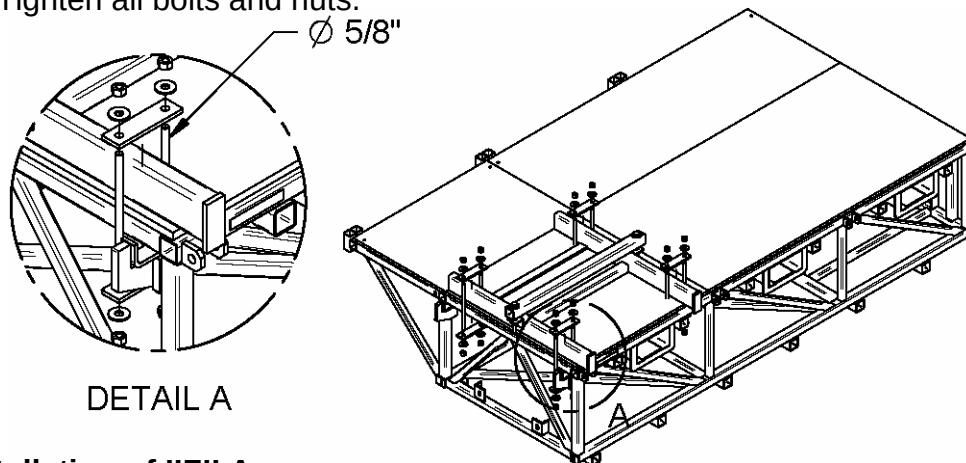
Toll Free : 800-267-0094

Fax : 450-658-8905

Technical	Model	Date of issue	Bulletin n°
	20K, FRSM-8000, ACT-8	2007-02-01	U-T-0005-A

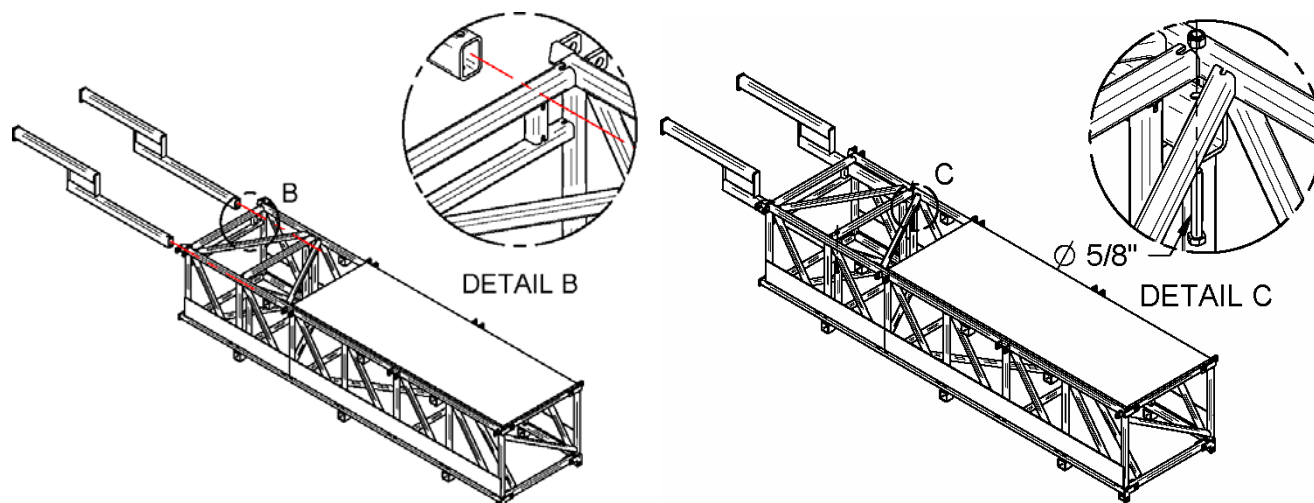
Installation of "Z" Bridge Arm support

- Install the "Z" Bridge Arm support on the extension.
- Secure the support with supplied fastening hardware (FOI-1656), drill holes in the plywood's of the extension.
- Make sure that you secure the support to the structure of the extension section.
- Tighten all bolts and nuts.



Installation of "Z" Arm

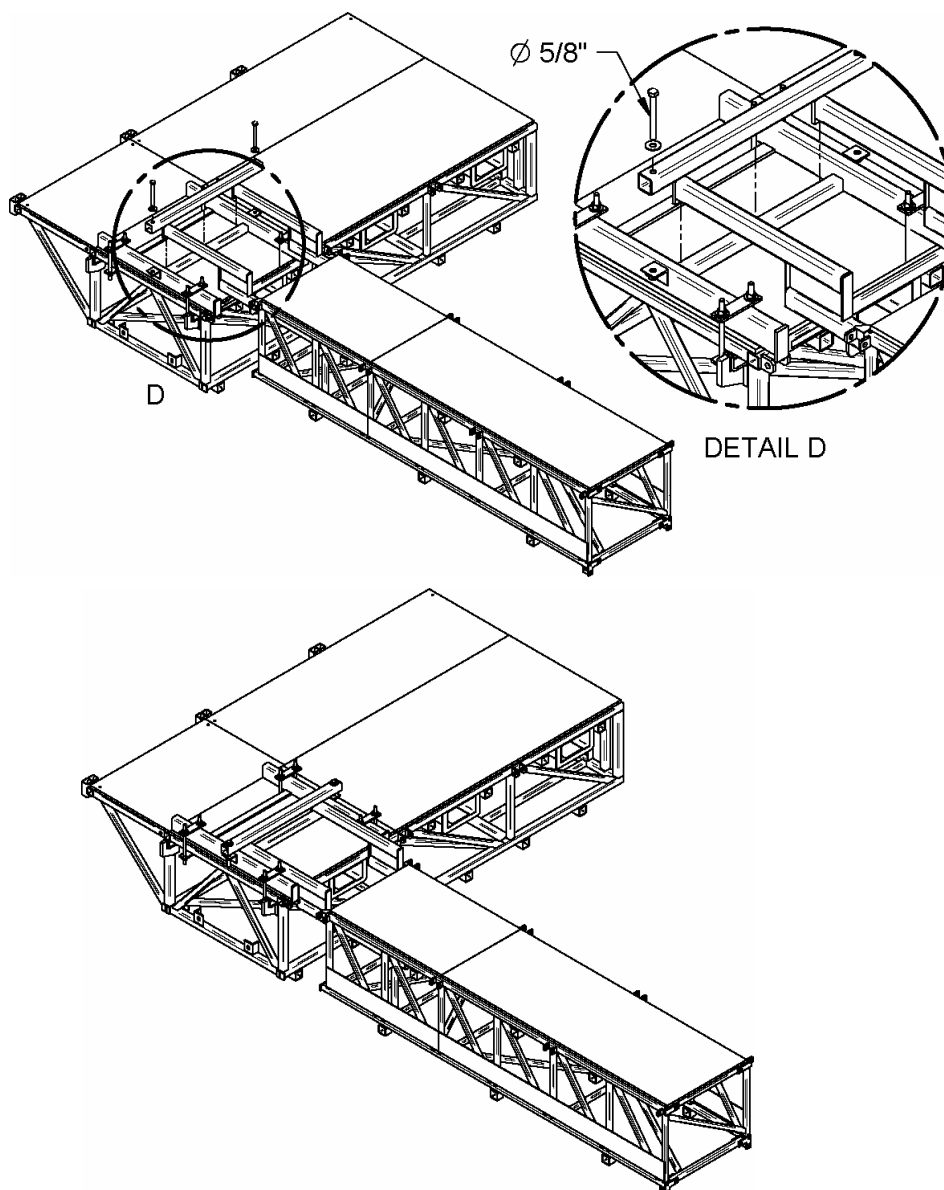
- Insert the lower part of the "Z" Bridge Arm in proper position of the bridge. (Remove the standard bridge arm)
- Lock them in place with bolts and nuts.



Technical	Model	Date of issue	Bulletin n°
	20K, FRSM-8000, ACT-8	2007-02-01	U-T-0005-A

Bridge installation on the cantilever section

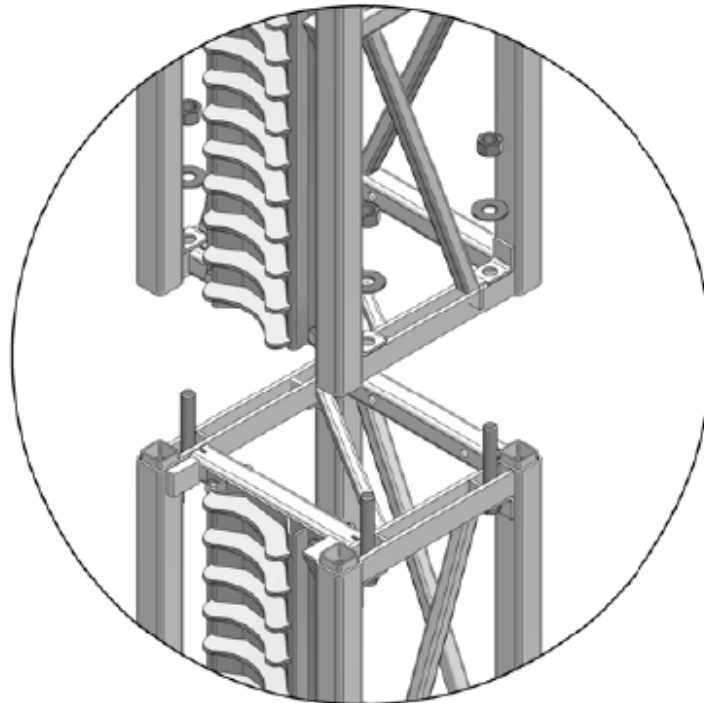
- Lower the Bridge Section on the extension, the upper part of the "Z" Bridge Arm must sit on the fixed support.
- Secure the "Z" Bridge Arm on it's support with supplied hardware.



Mast bolt assembly procedure
Amendment to all the FRACO platforms User's Guide

Please read carefully the present letter and insert it in all your Fraco User's Guide:

All mast bolts must be installed head down and washer must be positioned on the nut side (see illustration). Always tighten the nut. See user's guide for specific bolt torque.



The most recent versions of our user's guide are available on our Web site (www.fraco.com). Please refer to them for assembly procedures with regards to changes above.

For more information, contact our Technical Department:

Julie Rainville
Technical Service Director
Fraco Products

T: 800-267-0094 / 450-658-0094
F: 450-658-8905

**High priority warning: Height of the first and second wall tie
Amendment to all the FRACO platforms User's Guide**

Please read carefully the present letter and insert it in all your Fraco User's Guide:

Fraco is changing the anchoring procedure for all types of platforms when using ground base. The most recent versions of our user's guide are available on our Web site (www.fraco.com). Please refer to them for installation procedures with regards to changes below.

The two first ties must be at 10 and 20 feet (3m and 6 m) or at the two first accessible structural levels on the building (max 20') (max 6 m).

This new procedure is to upgrade the safety of our platform during the operation of installation and dismantling.

The platform **must be secured** by lifting equipment while installing or dismantling the two first ties. Once the second tie is in place, the installation continues by the usual procedure; reduce load platform (1/2 load) except the ACT-4 and the anchoring sequence typical for the type of platform in use as shown below:

FRSM-1500, FRSM-3000, FRSM-8000 :	20 feet (6 m)
ACT-8 et FRSM-20 K :	30 feet (9 m)
ACT-4 :	40 feet (12 m)

For more information, contact our Technical Department:

Julie Rainville
Technical Service Director
Fraco Products

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<u>Technical</u>	Model	Date of issue	Bulletin n°
	20K, ACT-8, FRSM-8000	2007-01-17	U-T-0004-A

FRACO

**Procedure installation for Hybrid Bridge
Add to FRACO platforms User's Guides for models indicated above**

Please read the following carefully and insert it in your Fraco User's Guides:

Hybrid Bridges

Please find attached the procedure for installation of hybrid bridges. These bridges can be used as extensions as well.

For further information or any question please contact:

Jean-François Laurin T.P. or Jean-Sébastien Lasnier T.P.

Telephone : 450-658-0094

Toll Free : 800-267-0094

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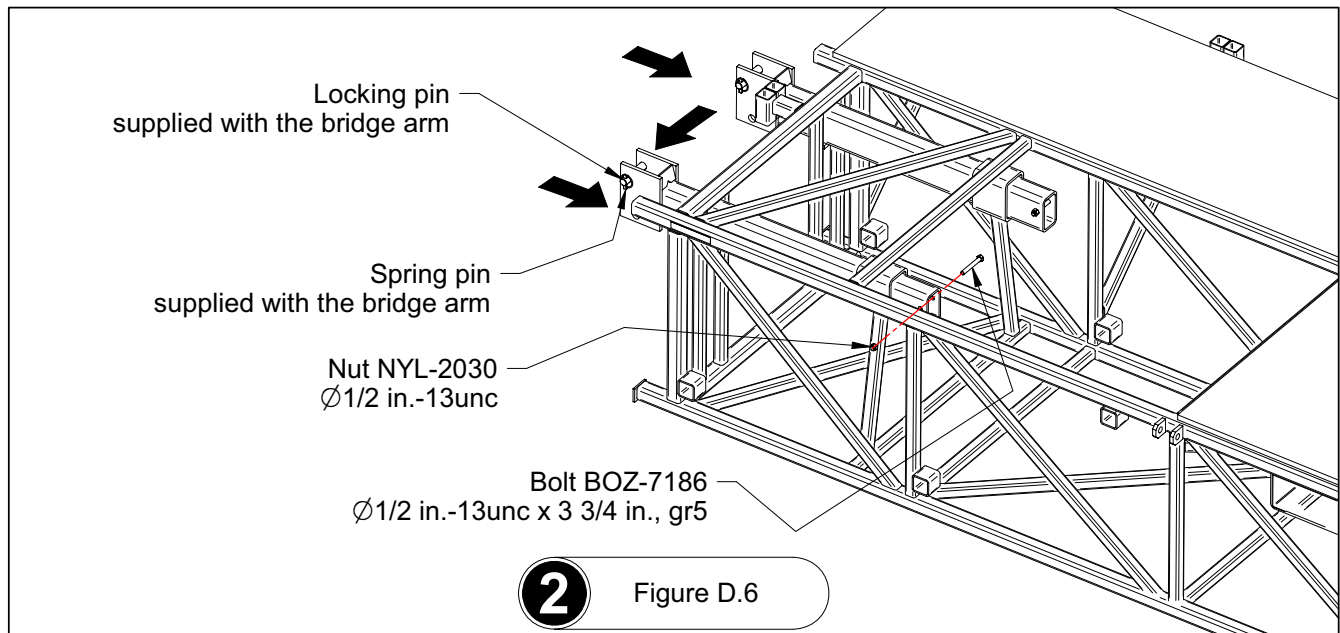
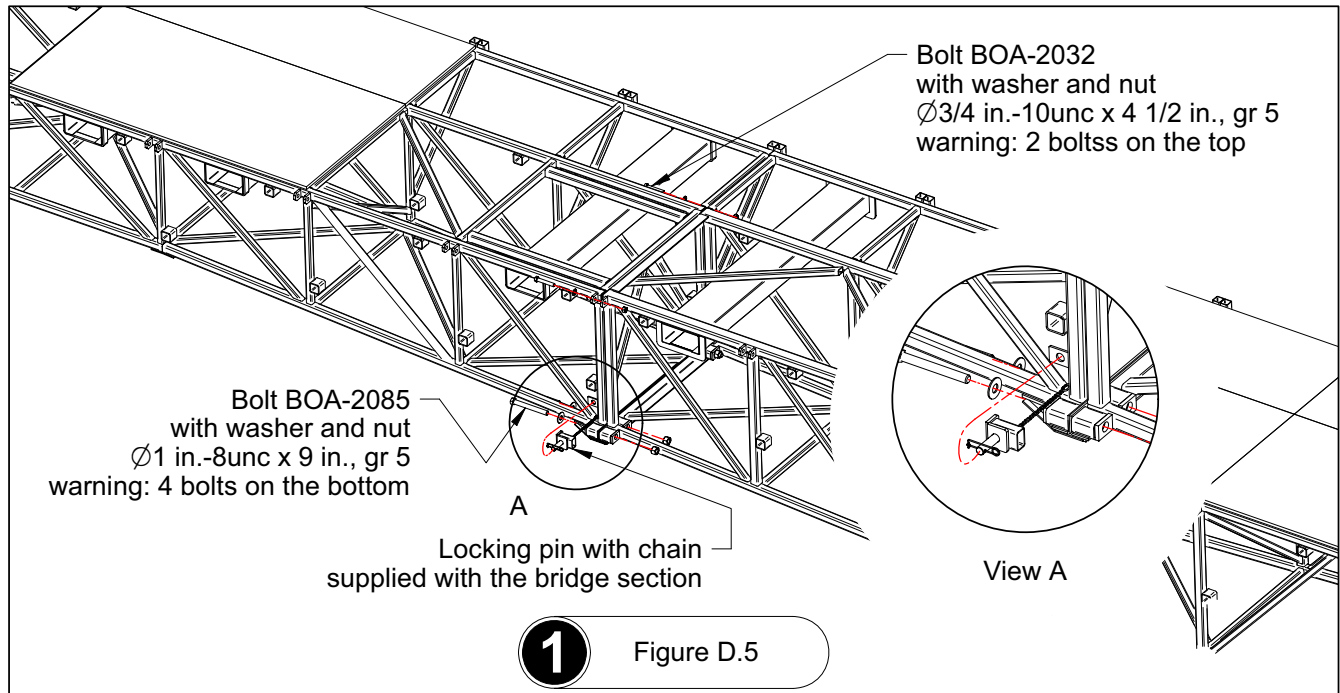
Installation of hybrid bridge sections

Step 1 (see Figure D.5 et Vue A)

- Bolt the sections together with 4 bolts of $\varnothing 1$ in.-8unc x 9 in. on the bottom of the bridge sections.
- Bolt the sections together with 2 bolts of $\varnothing 3/4$ in.-10unc x 4 1/2 in. on the top of the bridge sections.
- Position the pin with chain in the plate with holes (see View A).

Step 2 (see Figure D.6)

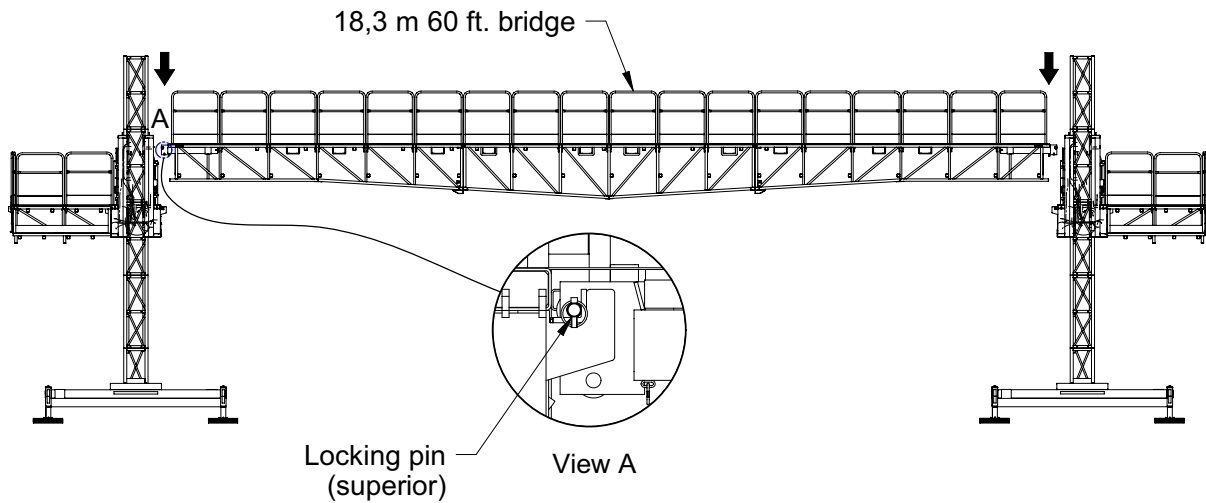
- Position the first pin on the top of the bridge arm and bloc it with a spring pin.
- Slide the bridge arms on the pockets of the bridge sections.
- Place a locking bolt $\varnothing 1/2$ in.-13unc x 3 3/4 in. and a lock nut $\varnothing 1/2$ in.-13unc at the back end of the bridge arm.



Installation of hybrid bridge sections (continued)

Step 3 (see Figure D.7)

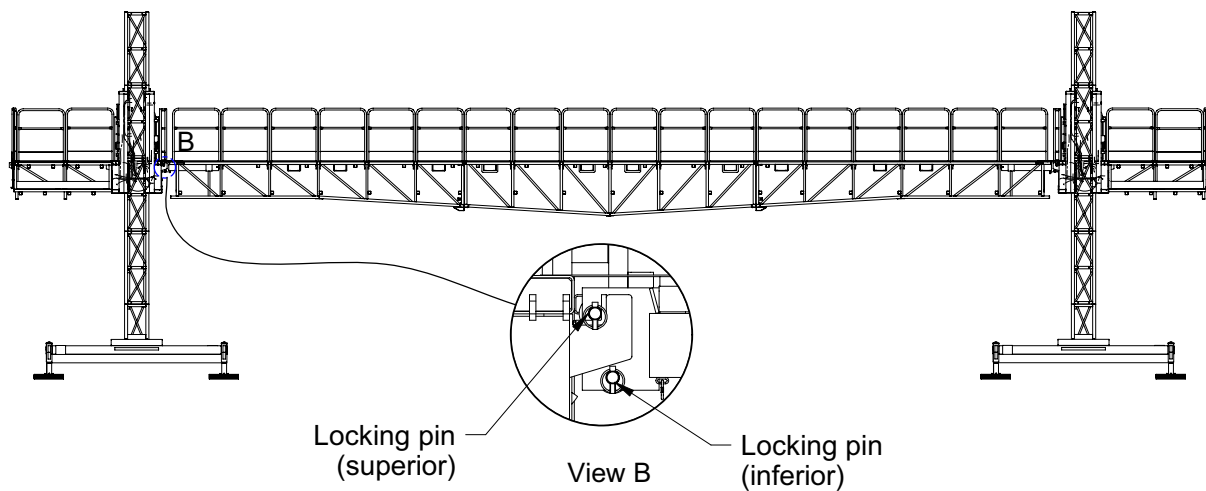
- Position the bridge on the hooks of the elevating unit or on the hooks of the cantilever section of 2 ft. 6 in. (see View A).



3 Figure D.7

Step 4 (see Figure D.8)

- Position the inferior locking pin at the bottom of the bridge arms and lock them with spring pins (see View B).



4 Figure D.8

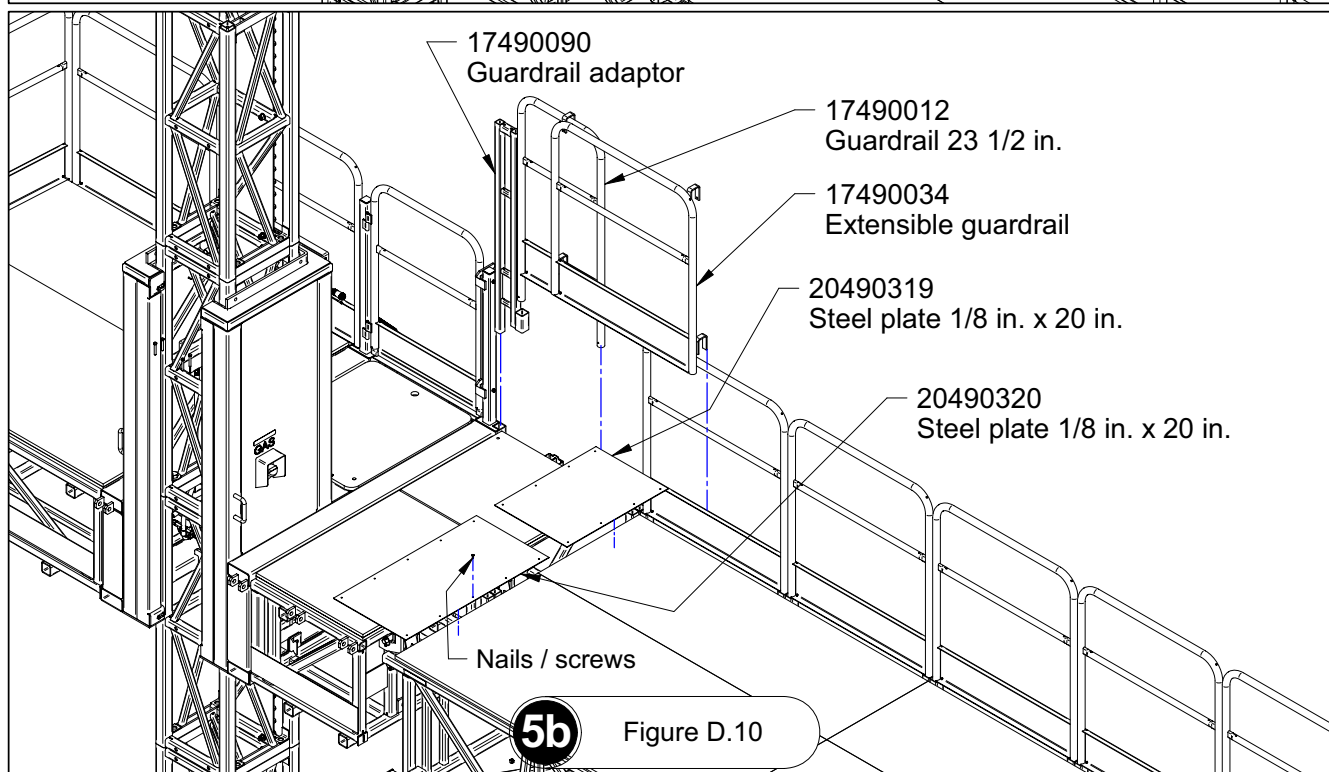
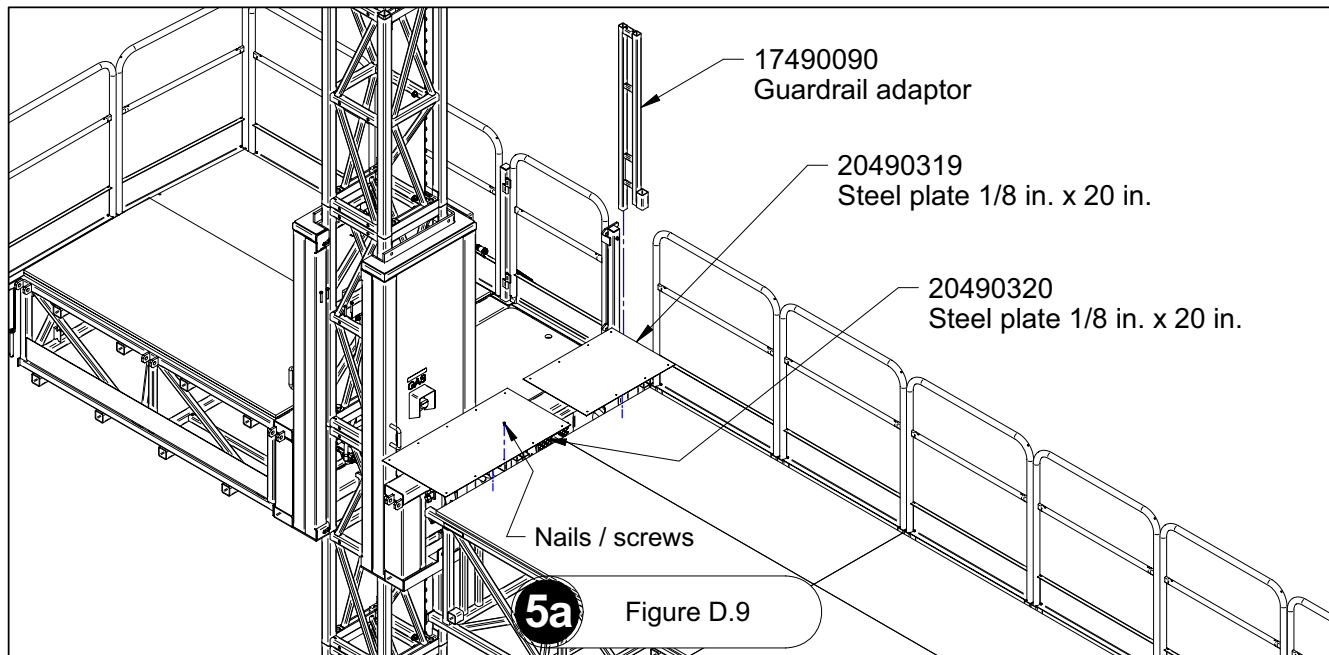
Installation of hybrid bridge sections (continued)

Step 5a (installation on unit directly) (see Figure D.9)

- Position the guardrail adaptor in the socket of the elevating unit.
- Install 2 non-slip steel plates of 1/8 in. x 20 in. between the unit and the bridge.

Step 5b (installation with a cantilever section of 2 ft. 6 in.) (see Figure D.10)

- Position the guardrail adaptor in the socket of the elevating unit.
- Position the guardrail 23 1/2 in. in the sockets of the cantilever section of 2 ft. 6 in.
- Position the extensible guardrail between the guardrail of the cantilever section of 2 ft. 6 in. and the guardrail of the bridge.
- Install 2 non-slip steel plates of 1/8 in. x 20 in. between the unit and the bridge.



Installation of hybrid cantilever sections

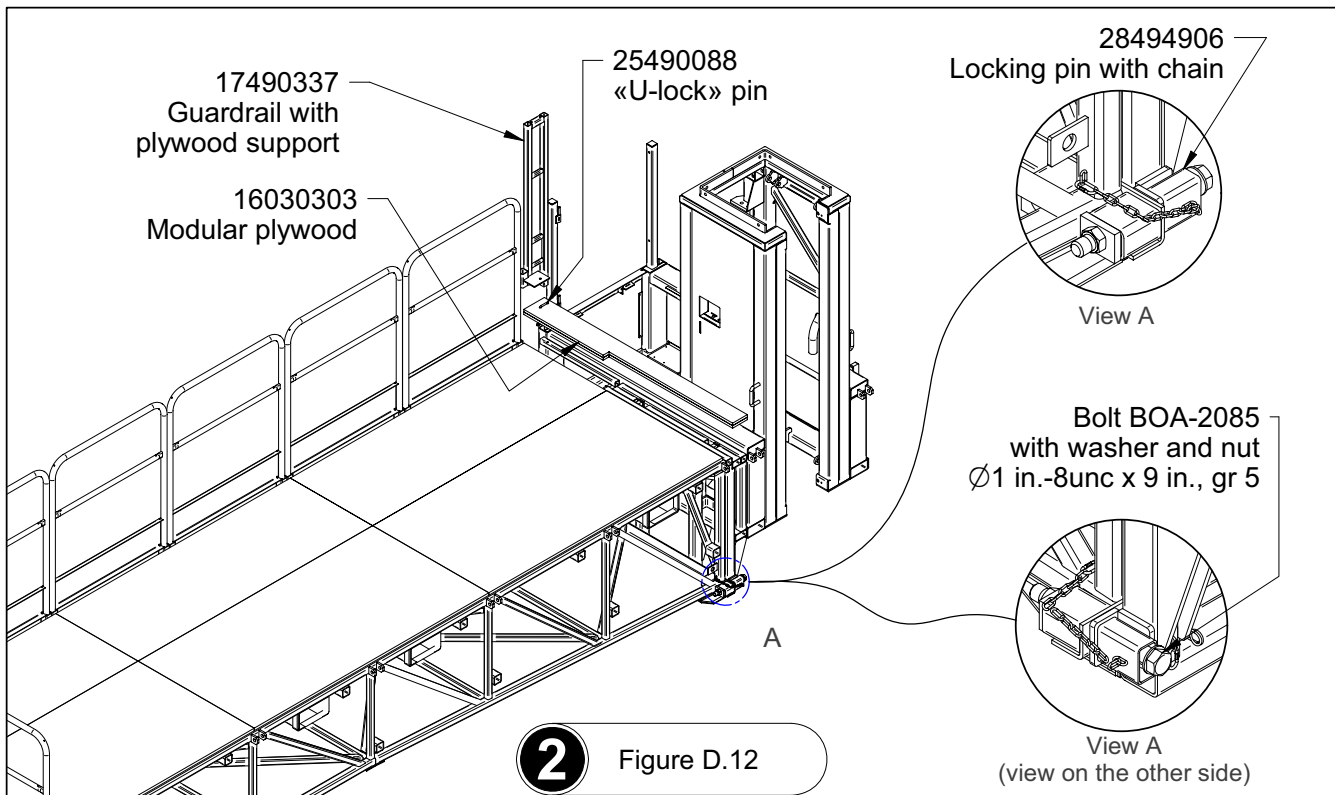
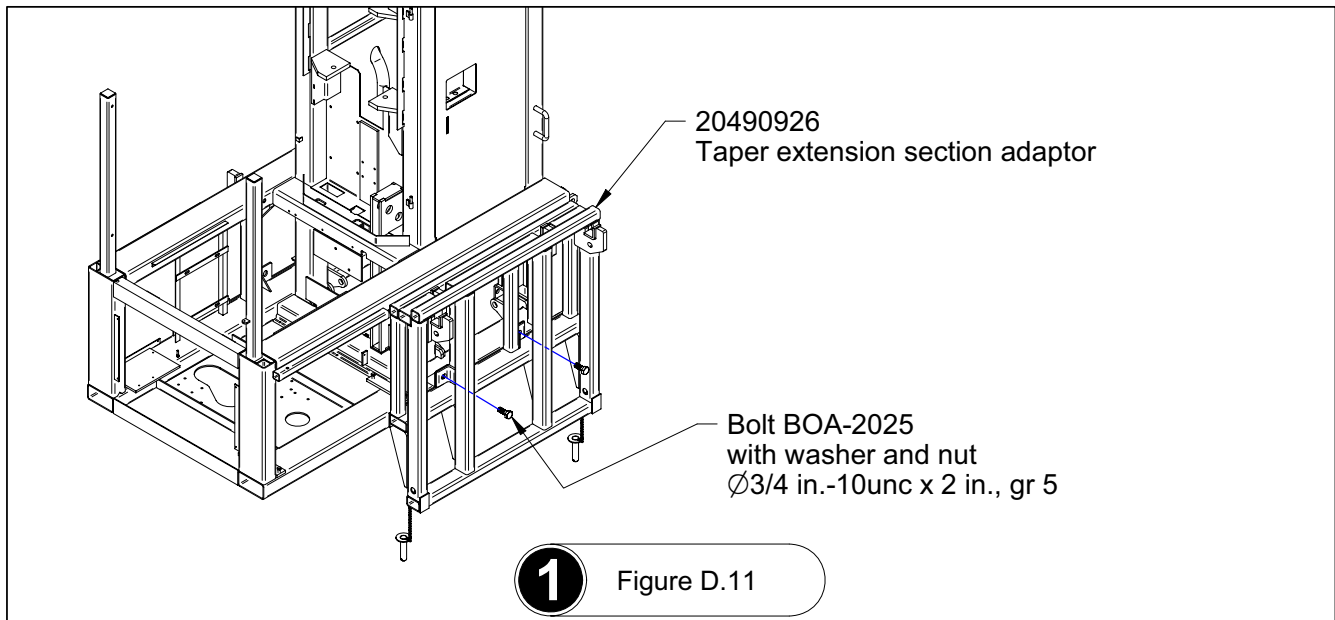
Step 1 (see Figure D.11)

- Screw down the taper extension section adaptor on the elevating unit with the 4 bolts $\varnothing 3/4$ in.-10unc-2 in.

Step 2 (see Figure D.12 and Views A)

- Position the guardrail with plywood support in the socket of the elevating unit.

- Place a «U-lock» pin to hold the plywood on the guardrail with plywood support.
- Nail down or screw down the modular plywood on the taper extension section adaptor.
- Position the lock pin with chain so the oval hole faces the bridge section
- Bolt the lock pin with the bridge section using bolts of $\varnothing 1$ in.-8unc x 9 in. (see View A).



Congratulations!
You are about to use the excellent
FRACO hydraulic elevating work platform system!

Unlike any other platform system on the market today,
FRACO provides you with the ultimate in **SAFETY, STABILITY** and **FLEXIBILITY**
while reducing your labour costs by up to 36%.

Due to the advanced technology of **FRACO Products**,
you can be assured of the **OPTIMUM QUALITY** in all our products.

FRACO is ISO 9001 registered

The instruction manual and safety rules presented on the following pages will safely guide you through all the possibilities of this system. The platform cannot be sold or rented without this user's guide.

FRACO Products Ltd reserves the right to modify the platform or its manual without notice, and will not assume any responsibility for any damage or injury that may occur.

This **FRACO** system meets ANSI and OSHA requirements.

MANUFACTURER



DISTRIBUTOR



If you have any questions, do not hesitate in calling us at:

(450) 658-0094

Canada: 1-800-267-0094
Montréal: (514) 990-7750
U.S.A.: 1-888-FRACO 4 U
1-888-372-2648
or fax us at: (450) 658-8905

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WARNING!

SAFETY IS OUR PRIMARY CONCERN.



For this reason, never remove or alter any part in order to adapt the platform to fit a specific area of the building.

USE ONLY GENUINE FRACO PARTS



PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY BEFORE INSTALLATION

FRACO (and/or its importer/representative) cannot be responsible for any property damage, severe injury or death that may result from failure to comply with the following safety recommendations, local rules and regulations.

Before operating this FRACO System, the following safety rules must be read and fully understood:

- 1- Mark out, with beacons or barricade tape and forbid the access around the base and the platform. This should be done according to the local rules.
- 2- If using a gasoline engine, do not work in an explosive environment such as refineries, etc.
- 3- The operator should be familiar with the user's guide and understand all the functions of the platform.
- 4- **Never assume anything.** If you have any questions concerning the operation of the FRACO, STOP! Refer to the proper user's guide. If you are still unsure, do not continue and call FRACO immediately.
- 5- In order to use, install or dismantle the system, a minimum of 2 people should be on the platform at all times, in case of a breakdown or rescue.
- 6- The maximum working height is 11,58 m (38 ft) in the freestanding mode when in use and 4 m (12 ft) otherwise.
- 7- If you need to go higher than 11,58 m (38 ft), you must use anchors. In that case, refer to the user's guide.
- 8- Always use anchors when you are not using the freestanding base.
- 9- This platform should be maintained periodically. Refer to the user's guide.
- 10- In case of an electrical storm, LEAVE the platform.
- 11- For personal safety, when the wind exceeds 50 km/h (30 mph) do not use, install or dismantle the platform. Make sure that the platform is lowered to the minimum.
- 12- Note the place where your fire extinguisher is located, and make sure that a certified person verifies it periodically.
- 13- It is the operator's responsibility to ensure that the load and the number of people allowed on the platform is complied with. (Refer to the standard load distribution chart).
- 14- This platform should never be specifically used as an elevator.



Always wear your safety harness when installing and dismantling the mast sections, the wall ties and when manipulating the planks when passing the anchors.

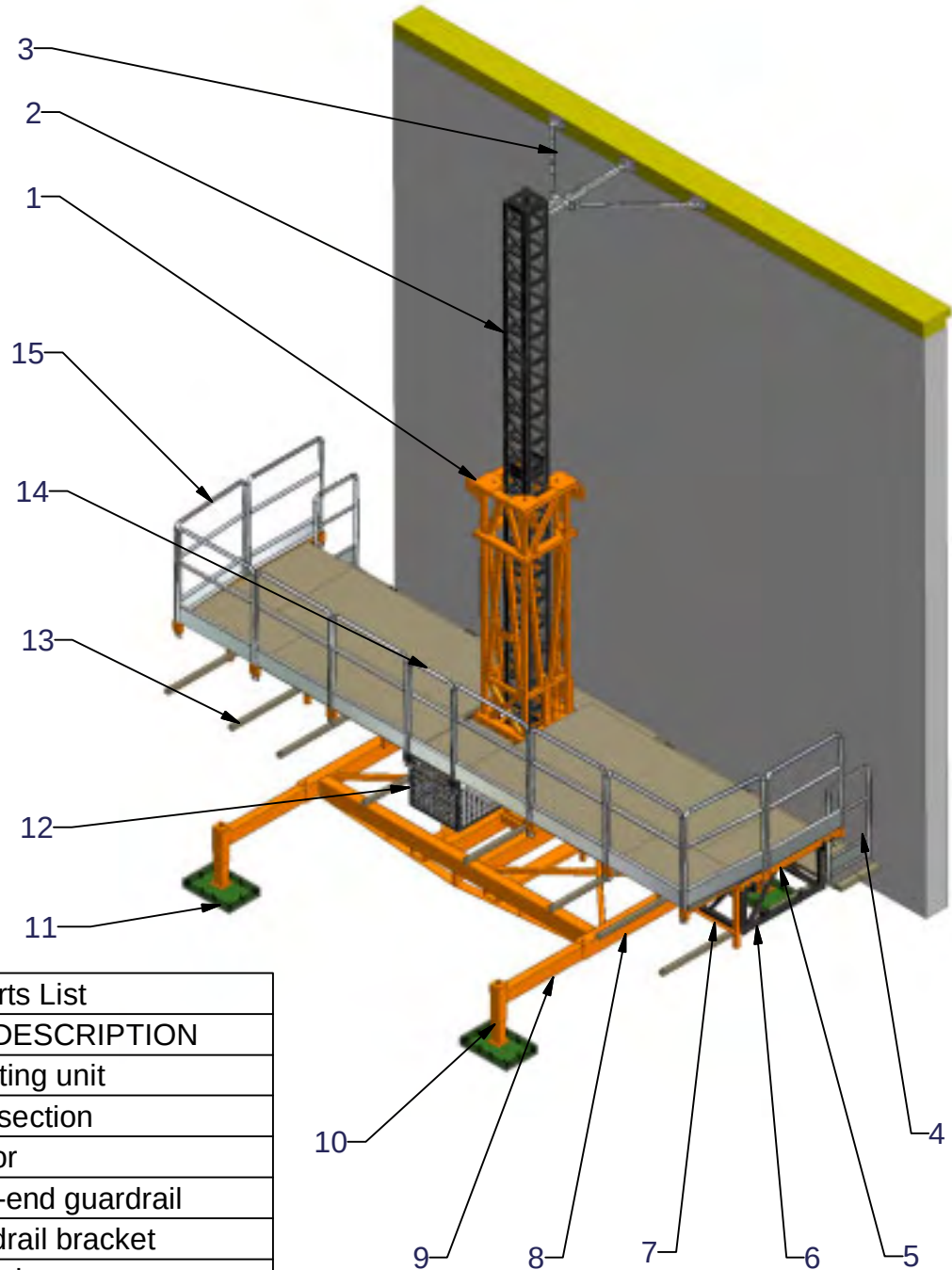
*Safety harnesses that meet the local safety code must be available at all times for each person on the platform. A safety line, in compliance with the codes and of sufficient length for the working height of the platform must be available at all times on the platform **for emergency use only.***

Before raising or lowering the FRACO make sure:

- 1- That the base is properly secured in position and levelled (see the tolerances permitted in the user's guide).
- 2- That all guardrails are in place.
- 3- That a visual inspection above and below the platform is carried out, before each vertical movement, to ensure no protrusions will impede or inhibit the proper movement of the FRACO.
- 4- To verify proper clearance for the walk boards (planks).
- 5- Not to exceed the freestanding height 11,58 m (38 ft) at the main platform floor from the ground.
- 6- That the platform has not exceeded the height of the last anchor.
- 7- That the worker removing the boards to pass the anchors is properly harnessed.
- 8- That everyone on board is alerted.
- 9- That the safety material is in the proper place and within reach of the operators.

Honda Gas Engine
Model: GX160-K1QHE
Vibration: 4.0 G Noise level: 74 dB
Operating speed: 3 600 RPM

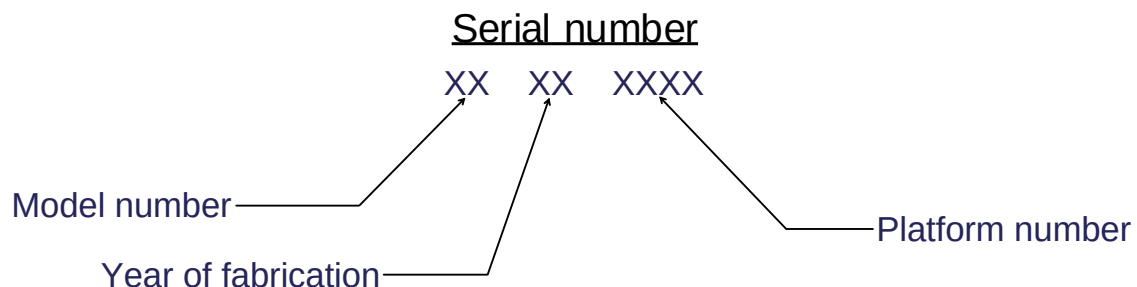
General view



Parts List	
ITEM	DESCRIPTION
1	Elevating unit
2	Mast section
3	Anchor
4	Plank-end guardrail
5	Guardrail bracket
6	Extension
7	Side bracket
8	Freestanding base
9	Stabilizer
10	Jack
11	Wooden jack pad
12	Hydraulic unit
13	Outrigger
14	Access door
15	Guardrail

Identification plate

This plate is found on the climbing frame
and should be visible at all times



Technical data

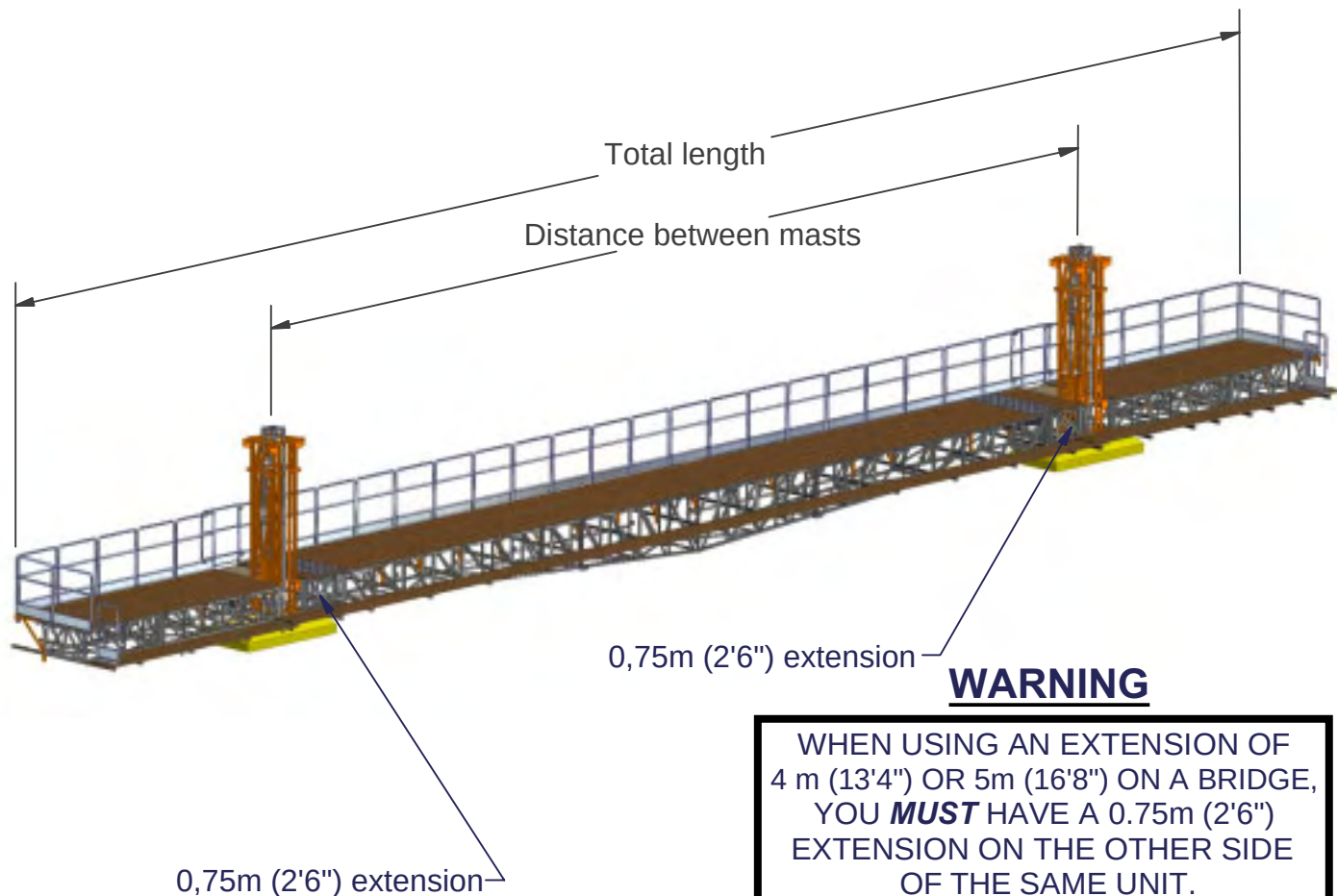
<i>Model number</i>		<i>BFS-8000 (Freestanding base)</i>
Overall length	12 ft 5 in	3,78 m
Overall width	8 ft	2,44 m
Total weight	1 920 lbs	873 kg
Ground Base (dimension / weight)	3 ft 2 in x 6 ft 8 in / 455 lbs	0,97 m x 2,04 m / 207 kg
<i>Model number</i>		<i>FRSM-8000</i>
Maximum length of platform single mast	36 ft 1 in	11,00 m
Maximum length of platform double mast	105 ft	32 m
Lower Working area width	12 in to 5 ft	0,3 m to 1,52 m
Higher Walking and Loading area	Standard: 5 ft 10 in	Standard: 1,78 m
	Maximum: 8 ft 2 in	Maximum: 2,49m
Lifting speed	3 ft / minute	0,92 m / minute
Maximum height of the mast (with anchors)	550 ft	168 m
Maximum height of the mast (without anchors)	38 ft	11,58 m
Minimum ground clearance	1 ft	0,3 m
HONDA engine	5,5 HP	
Mast section (Dimension / Weight)	12 in x 12 in x 10 ft / 370 lbs	0,3 m x 0,3 m x 3,05 m / 168 kg
Elevating unit (Dimension / Weight)	2 ft 4 in x 2 ft 3 in x 10 ft 8 in / 1580 lbs	0,71 m x 0,69 m x 3,25 m / 718,2 kg
Extension section (Dimension / Weight)	3 ft 6 in x 2 ft 3 in x 2 ft 6 in / 250 lbs	1,07 m x 0,67 m x 0,75 m / 113,6 kg
	3 ft 6 in x 2 ft 3 in x 3 ft 4 in / 250 lbs	1,07 m x 0,67 m x 1 m / 113,6 kg
	3 ft 6 in x 2 ft 3 in x 6 ft 8 in / 395 lbs	1,07 m x 0,67 m x 2 m / 179,5 kg
	3 ft 6 in x 2 ft 3 in x 10 ft / 540 lbs	1,07 m x 0,67 m x 3 m / 245,5 kg
Bridge section (Dimension / Weight)	3 ft 6 in x 3 ft 1 in x 15 ft / 1 145 lbs	1,07 m x 0,95 m x 4,57 m / 520,5 kg
	3 ft 6 in x 3 ft 1 in x 20 ft / 1 405 lbs	1,07 m x 0,95 m x 6 m / 638,6 kg
Central bridge section (Dimension / Weight)	3ft 6 in x 3 ft 1 in x 20 ft / 1 310 lbs	1,07 m x 0,95 m x 6 m / 595.5 kg



Part II

Installing the platform

Distance between 2 mast sections



Minimum distance between masts in double mast configuration with*			
Bridge type	No 0.75m (2'6") extension	one 0.75m (2'6") extension	two 0.75m (2'6") extension
9 m (30') bridge	10,03 m (32'11")	10,80 m (35'5")	11,56 m (37'11")
12 m (40') bridge	13,08 m (42'11")	13,84 m (45'5")	14,61 m (47'11")
15 m (50') bridge	16,13 m (52'11")	16,89 m (55'5")	17,65 m (57'11")
18 m (60') bridge	19,18 m (62'11")	19,94 m (65'5")	20,70 m (67'11")

Standard distance between masts in double mast configuration with*			
Bridge type	No 0.75m (2'6") extension	one 0.75m (2'6") extension	two 0.75m (2'6") extension
9 m (30') bridge	10,24 m (33'7")	11,00 m (36'1")	11,76 m (38'7")
12 m (40') bridge	13,28 m (43'7")	14,05 m (46'1")	14,81 m (48'7")
15 m (50') bridge	16,33 m (53'7")	17,09 m (56'1")	17,85 m (58'7")
18 m (60') bridge	19,38 m (63'7")	20,14 m (66'1")	20,90 m (68'7")

Maximum distance between masts in double mast configuration with*			
Bridge type	No 0.75 m (2'6") extension	one 0.75m (2'6") extension	two 0.75m (2'6") extension
9 m (30') bridge	10,44 m (34'3")	11,20 m (36'9")	11,96 m (39'3")
12 m (40') bridge	13,49 m (44'3")	14,25 m (46'9")	15,01 m (49'3")
15 m (50') bridge	16,54 m (54'3")	17,30 m (56'9")	18,06 m (59'3")
18 m (60') bridge	19,58 m (64'3")	20,35 m (66'9")	21,11 m (69'3")

*The bridge arms must be extended from 5 cm (2") to 20 cm (8").

Installing the FRACO platform

Verify the ground weight bearing capacity and make sure that it can support the base and the platform:

Ground capacity:

Mast height	Capacity
0 to 46 m (150 ft)	> 72 kN/m ² (1500 lbs/sq. ft.)
46 m (150 ft) and higher	To be determined for each project

When using the standard ground base: (see page II- 3)

- 1- Start by levelling the ground with a maximum of 10 cm (4") of material (crushed stone is recommended).
- 2- Measure the exact distance "L" between the base and the wall, taking into account all obstacles that the platform will have to go around. Also take into account the mast-to-mast distance when using a double mast configuration (see page II-1).

Installation type	Distance "L"
Standard	0,86m (34") for 2 planks
Other possibilities	1,12 m (44")
	1,37 m (54")
Maximum	1,63 m (64") for 5 planks

- 3- Install the FRACO system (elevating unit and base) perfectly perpendicular to the wall at the appropriate "L" distance.
- 4- Make sure that the mast is perfectly vertical and that the base is level and stable.

When using the freestanding base: (see page II-4)

- 1- Measure the exact distance "L" between the base and the wall, taking into account all obstacles that the platform will have to go around. (see page II- 4) Also take into account the mast-to-mast distance when using a double mast configuration (see page II- 1).

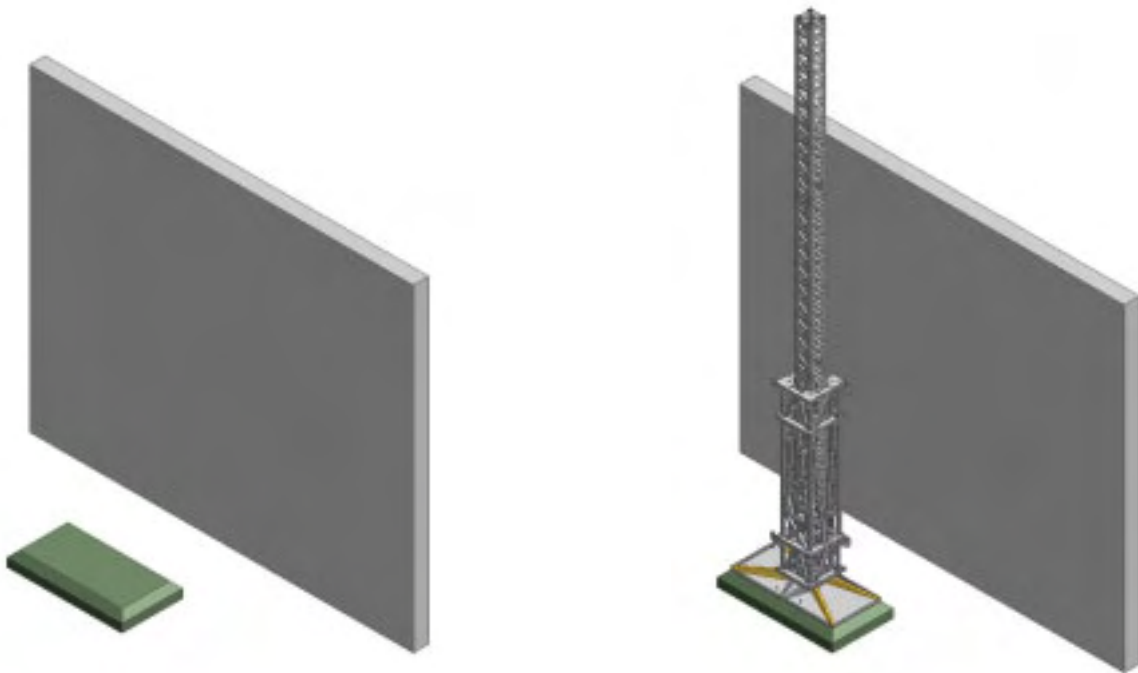
Installation type	Distance "L"	Distance "D"
Standard	43 cm (17")	25 cm (10")
Maximum	1,19 m (47")	MANDATORY

*****Always install wooden jack pads under stabilizer jack plates*****

- 2- Install the freestanding base perfectly perpendicular to the wall with the appropriate "L" and "D" distances.
- 3- Extend the stabilizers of the base as much as possible (rear ones 1,22 m (48") and the front ones at distance "D") . Lower the jacks onto the jack pads (see instructions on the stabilizers).
- 4- Level the base with a bubble level.
- 5- Make sure that the mast is perfectly vertical and that the base is level and stable.

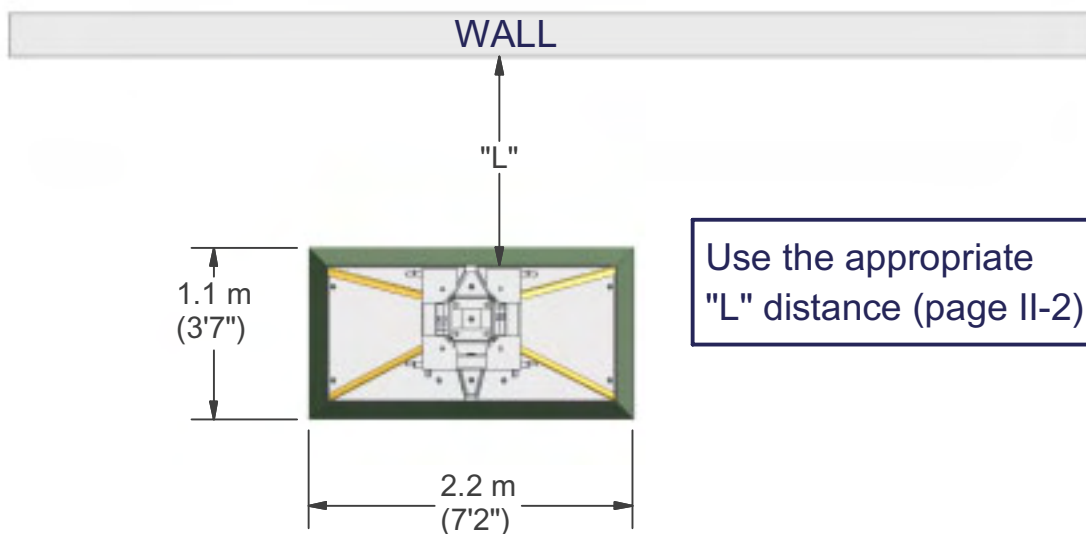
Installing the elevating unit

Ground base



1-Make a bed of crushed stone exceeding the base by a minimum of 25 mm (1").

2-Install the elevating unit perfectly perpendicular to the wall.



Use the appropriate "L" distance (page II-2).

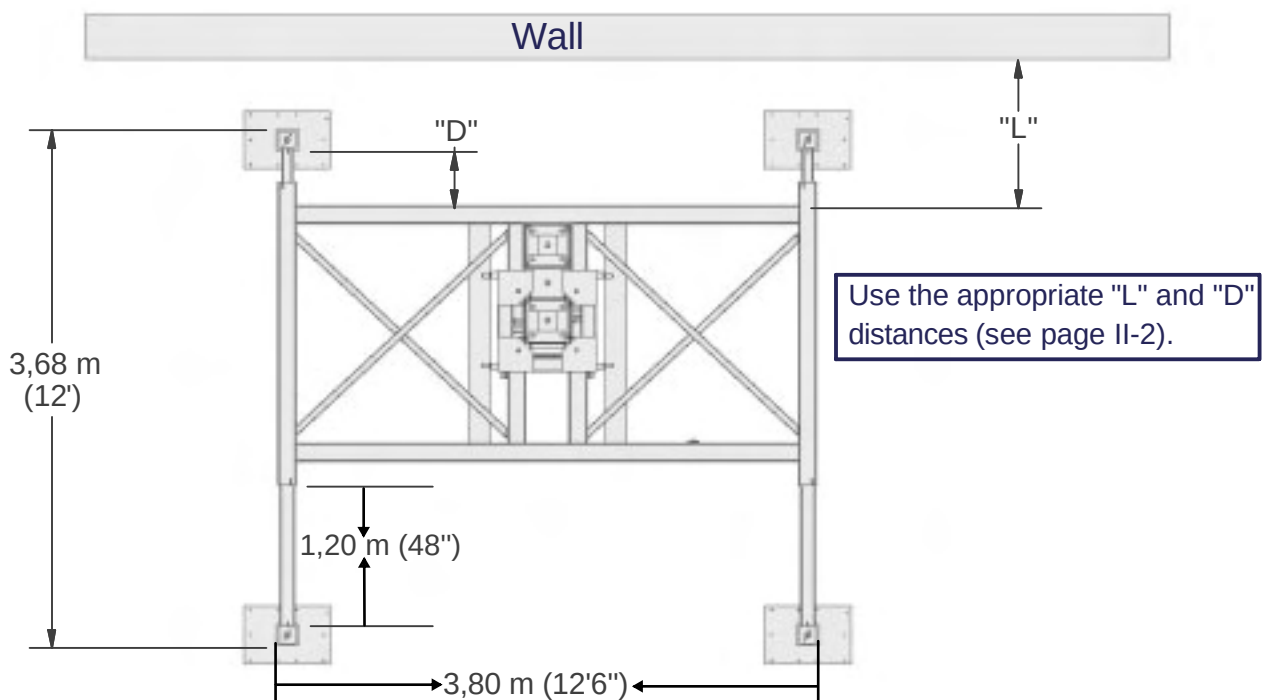
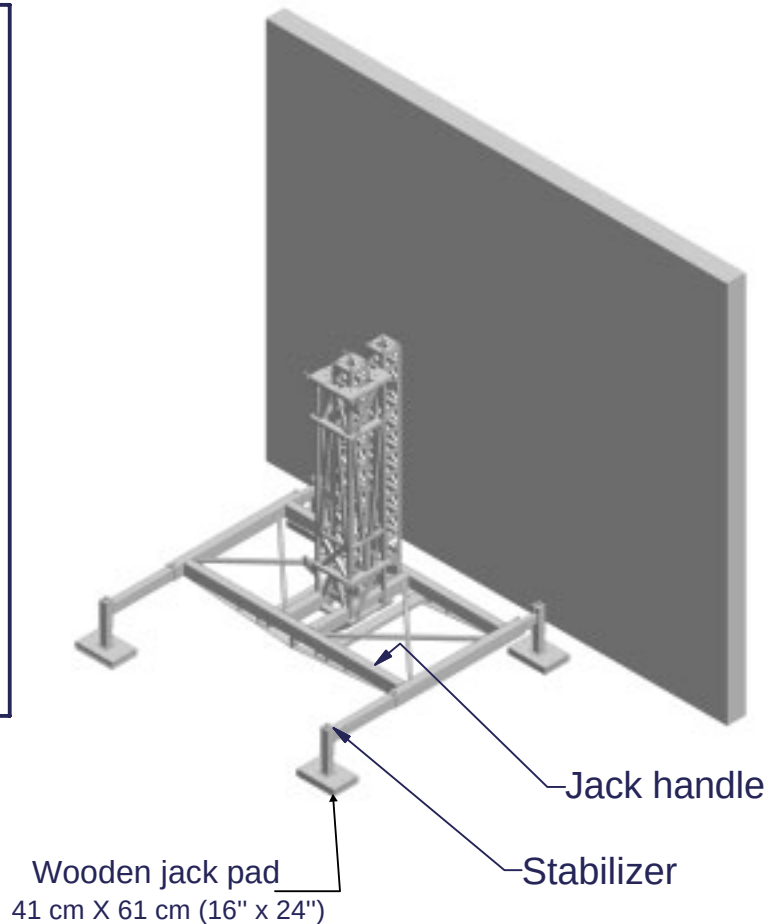
Installing the elevating unit

Freestanding base

Installation

- 1-Deploy the rear stabilizers to 1,20 m (48").
- 2-Deploy the front stabilizers to 0,25 m (10").
- 3-Place the 4 wooden jack pads under the stabilizers.
- 4-Place the freestanding base perfectly perpendicular to the wall using the appropriate "L" and "D" distances (page II-2)
- 5-Level the base using the jack handle and the stabilizers.

If you have to go over the maximum freestanding height and use anchors, close the 4 stabilizers to the minimum. The maximum height for a freestanding base with anchors is 30,5 m (100').



Installing the elevating unit

Freestanding base

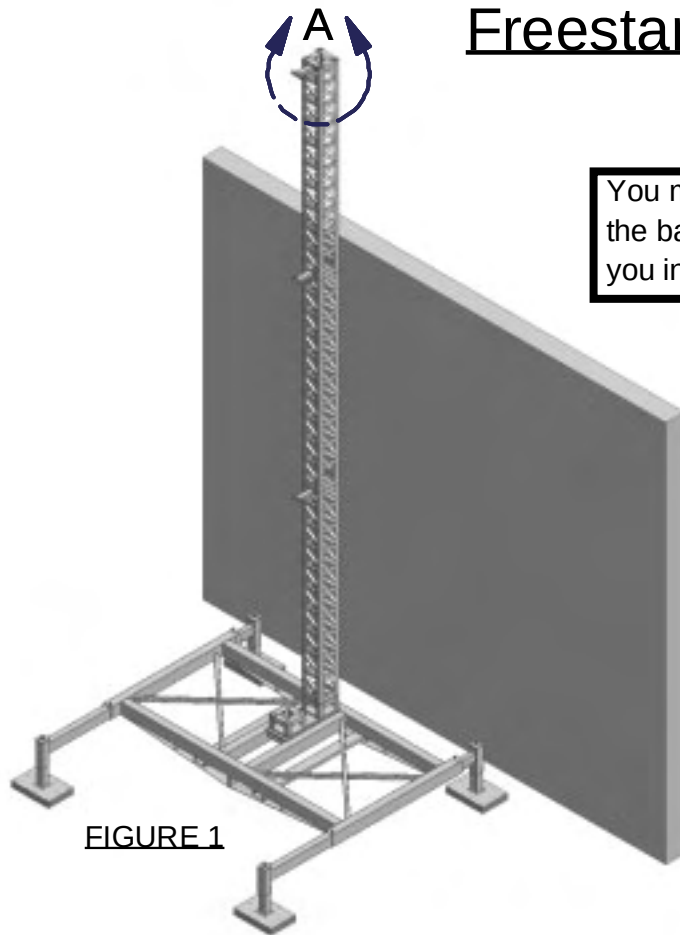
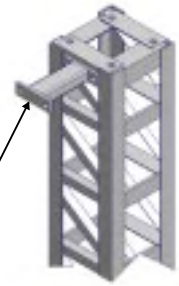


FIGURE 1

You must tighten the bolts between the base and the mast only after you install the mast coupler.

Mast coupler
20490094



DETAIL-A

Installation

- 1-Assemble a 9,15 m (30') mast on the ground and add mast couplers at the end of each mast section (DETAIL-A) (3 in total)
- 2-Install the 9,15 m (30') mast on the freestanding base so that the couplers are facing away from the wall. FIGURE 1
- 3-Assemble the elevating unit with a 9,15 m (30') mast. (12,20 m (40') of total mast)
- 4-Install the elevating unit on the freestanding base. FIGURE 2
- 5-Bolt the mast couplers to join the two masts together.
- 6-Tighten the bolts between the mast and the freestanding base.

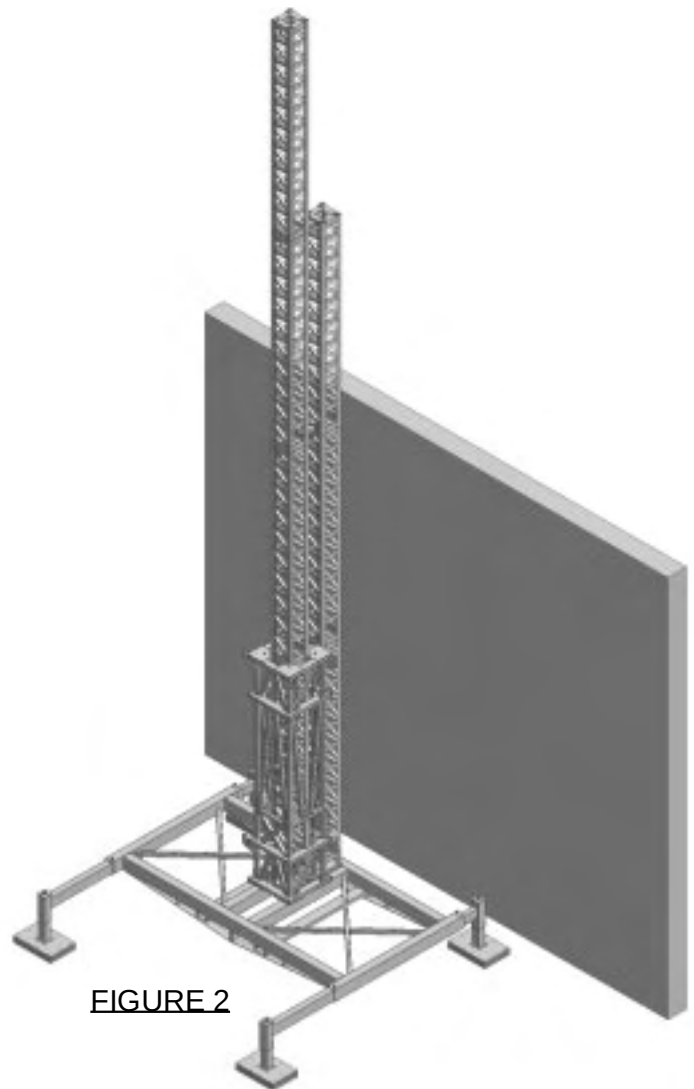
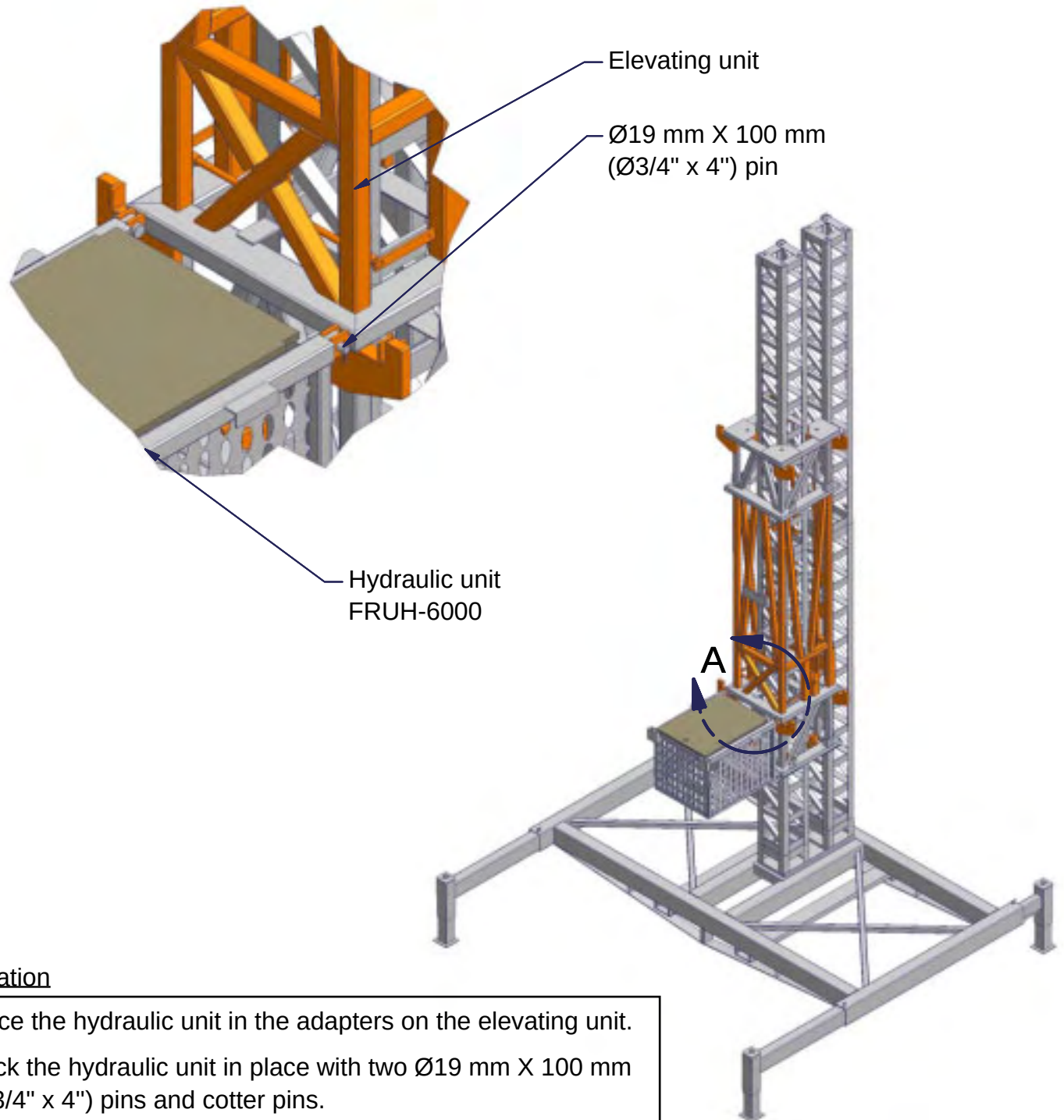


FIGURE 2

Hydraulic unit



Installation

- 1-Place the hydraulic unit in the adapters on the elevating unit.
- 2-Lock the hydraulic unit in place with two Ø19 mm X 100 mm (Ø3/4" x 4") pins and cotter pins.

Extension

Installation

- 1-Install the extension on the hooks of the hydraulic unit or on the hooks of another extension.
- 2-Bolt the extension to the hydraulic unit or to another extension using two Ø19 mm x 64 mm (Ø3/4" x 2 1/2") bolts.

IMPORTANT

- Make sure you do not have more than 3 m (10') of difference between the extensions during the installation.
- When you are done, there can be a maximum difference of 1 m (3'4") between the extensions.
- The maximum extension length is 5 m (16'8").

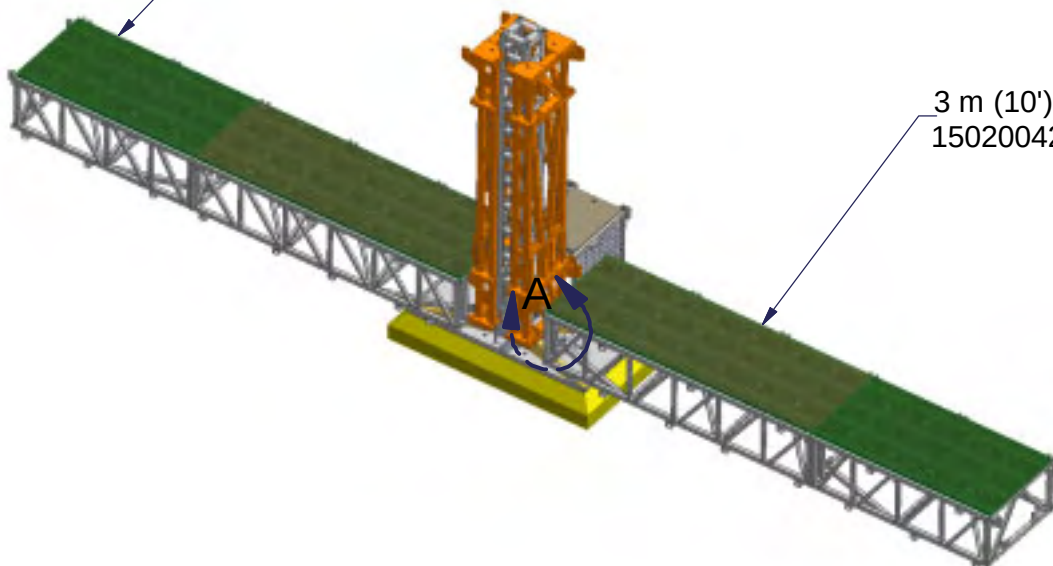
Elevating unit hook

Ø19 mm X 64 mm
(Ø3/4" X 2 1/2")

2 m (6'8") extension
15020031

3 m (10') extension
15020042

DETAIL-A



Bridge

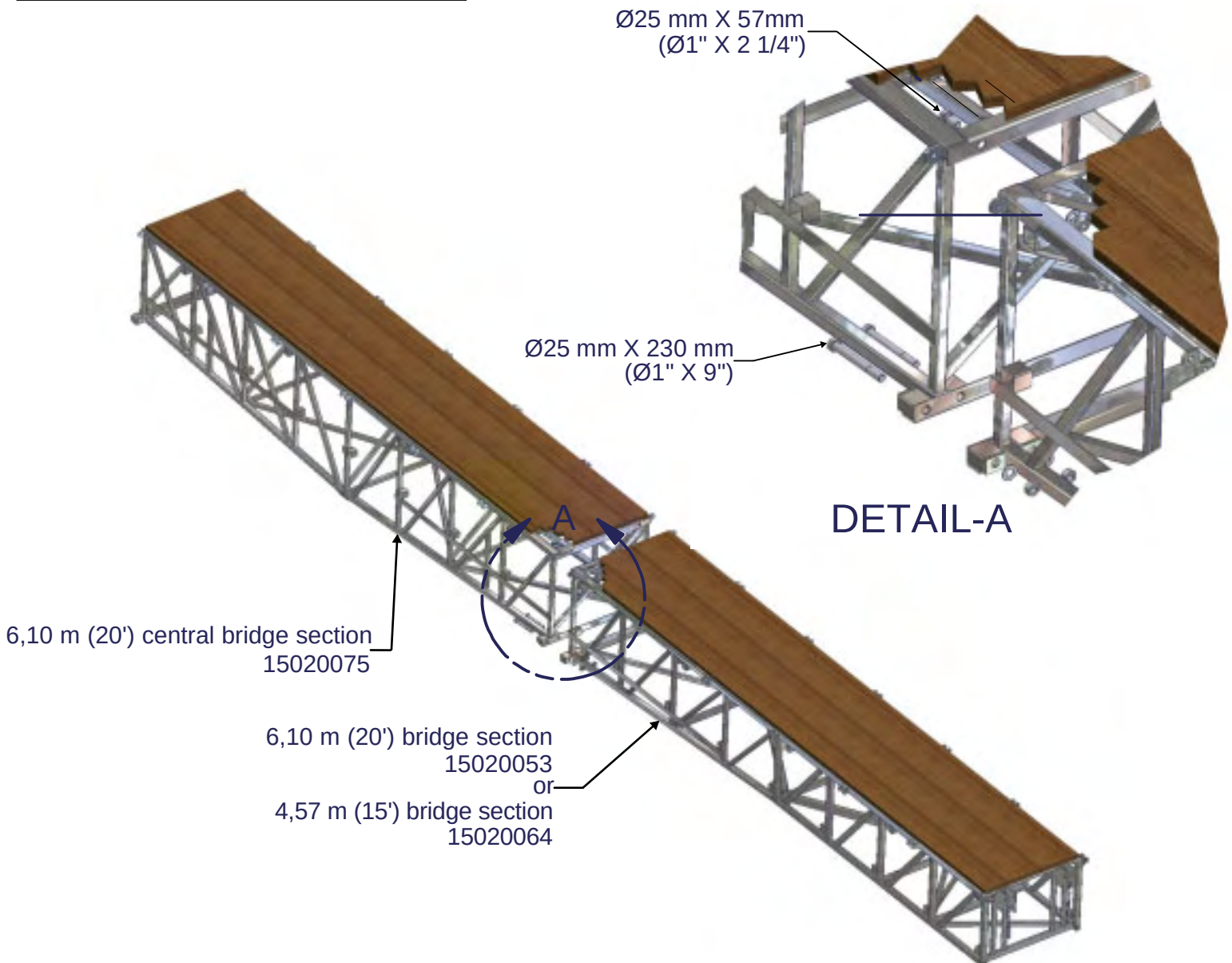
Bridge assembly

Installation

1-Assemble the bridge to the desired length using the "Bridge assembly" chart. THE MAXIMUM LENGTH OF A BRIDGE IS 18,29 M (60').

2-Bolt all the bridge sections together using two Ø25 mm X 57mm (Ø1" X 2 1/4") bolts on the top of the bridge and four Ø25 mm X 230 mm (Ø1" X 9") bolts on the bottom of the bridge.

Type of bridge	4,6 m (15') section	6,1 m (20') section	6,1 m (20') central section	Weight
9,14 m (30')	2			1 041 kg 2 290 lbs
10,67 m (35')	1	1		1 159 kg 2 550 lbs
12,19 m (40')		2		1 277 kg 2 810 lbs
15,24 m (50')	2		1	1 636 kg 3 600 lbs
16,76 m (55')	1	1	1	1 755 kg 3 860 lbs
18,29 m (60')		2	1	1 873 kg 4 120 lbs

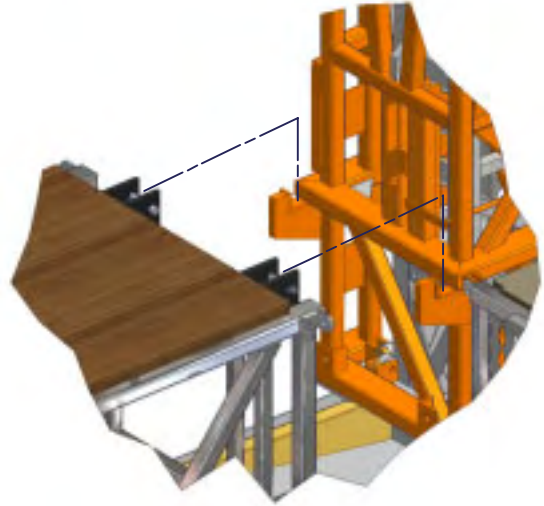


Bridge

With the installation of a 1 m, 2 m or 3 m (3'4", 6'8" or 10') extension

Installation

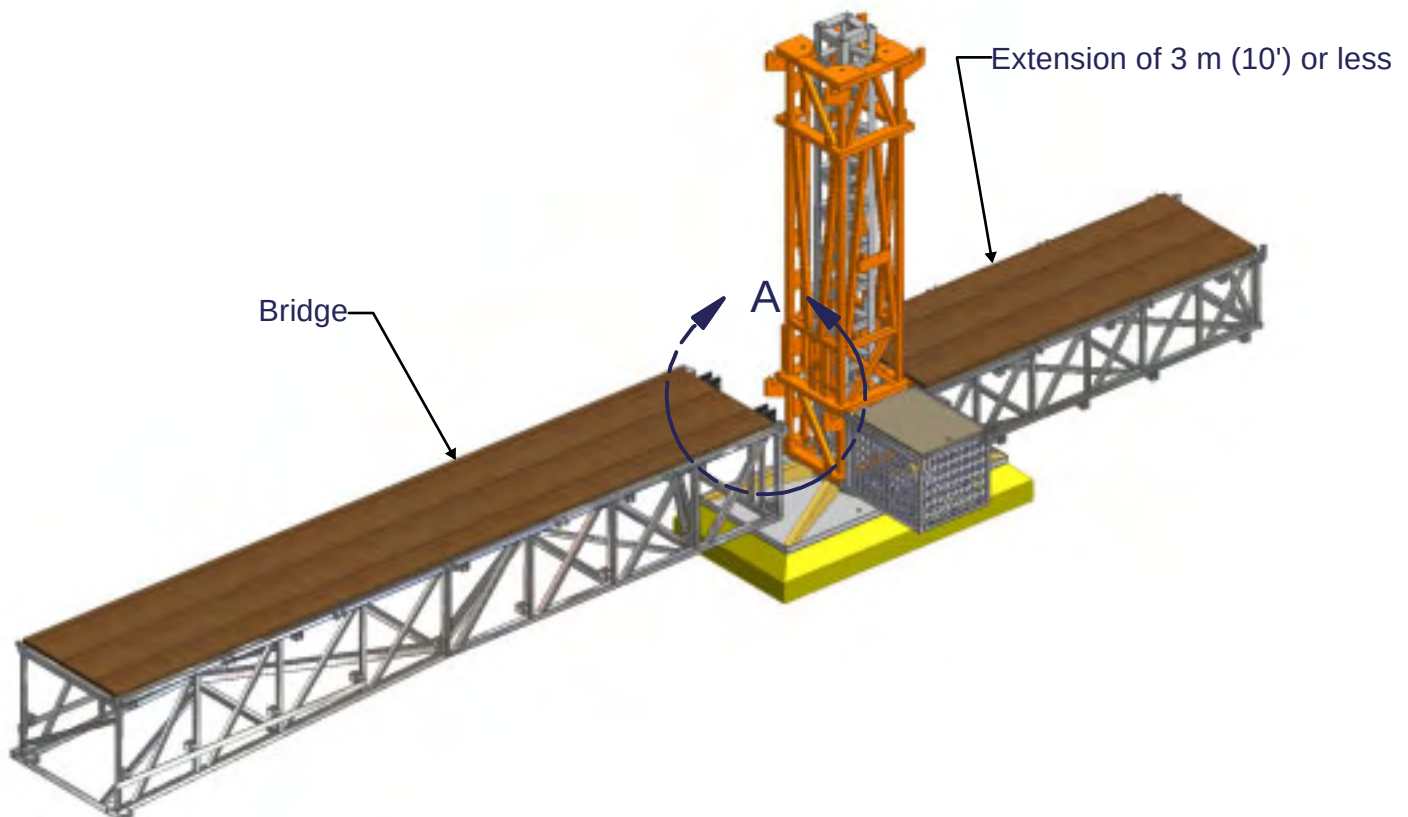
- 1-Insert the bridge arms in the hooks of the elevating unit
- 2-Install the locks to secure the bridge arms and lock them with a safety pin.



IMPORTANT

Never use a 0,75 m (2'6") extension section with a 1 m, 2 m or 3 m (3'4", 6'8" or 10') extension.
Before the installation of a bridge, proceed to the installation of the first anchor on both elevating units (see part IV)

DETAIL A

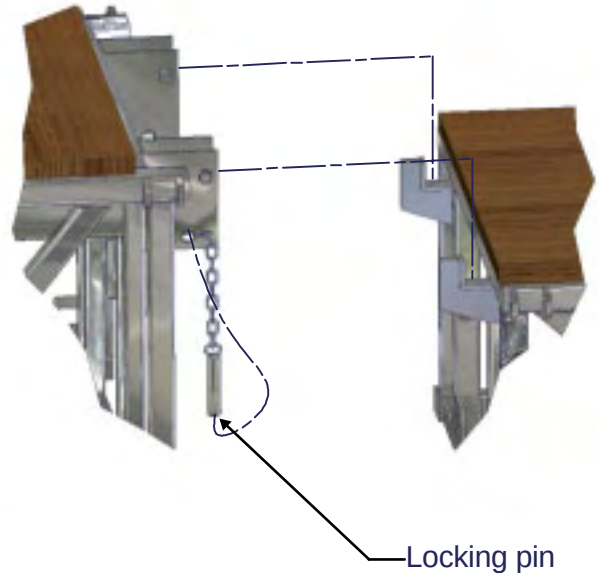


Bridge

With the installation of a 4 m or 5 m (13'4 or 16'8") extension

Installation

- 1-Install a 0,75 m (2'6") extension. (see page II-7)
- 2-Bolt the 0,75 m (2'6") extension to the elevating unit with 2 bolts. (see page II-7)
- 3-Insert the bridge arms in the hooks of the 0,75 m (2'6") extension section. (DETAIL-A)
- 4-Install the locks to secure the bridge arms and lock them with a safety pin . (DETAIL-A)
- 5-Install the extension as shown on page II-7.

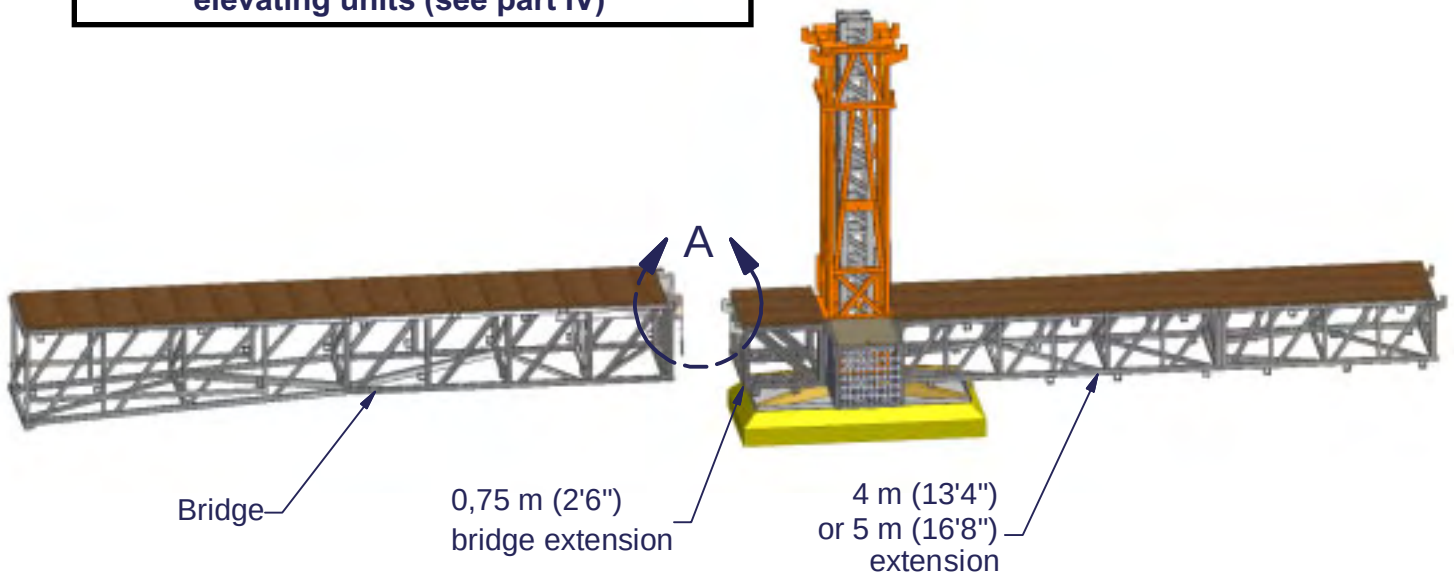


IMPORTANT

The 0,75 m (2'6") extension is necessary when using 4 m (13'4") or longer extension.

Before the installation of a bridge, proceed to the installation of the first anchor on both elevating units (see part IV)

DETAIL-A



Outrigger

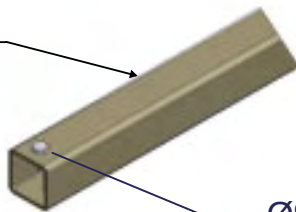
Installation

- 1-Make sure that the Ø9 mm (Ø3/8") bolt is in place before installing the outriggers. (DETAIL-A)
- 2 -Install the outriggers in the lower or upper adapters. (DETAIL-B)
- 3 -Make sure that there is no more than 2,13 m (7') between the outriggers.
- 4 -Install a pin with washer in each outrigger and secure with a cotter pin. (DETAIL-C)
- 5-Adjust the outrigger so that there is 6 cm (2"1/2) between it and the wall. (DETAIL-D)

IMPORTANT

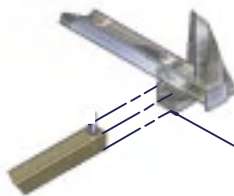
The outriggers cannot be deployed more than 2,13 m (7').

Outrigger
19010034



DETAIL-A

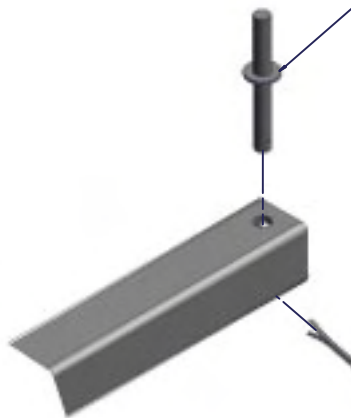
Ø9 mm bolt
(Ø3/8")



Outrigger adapter

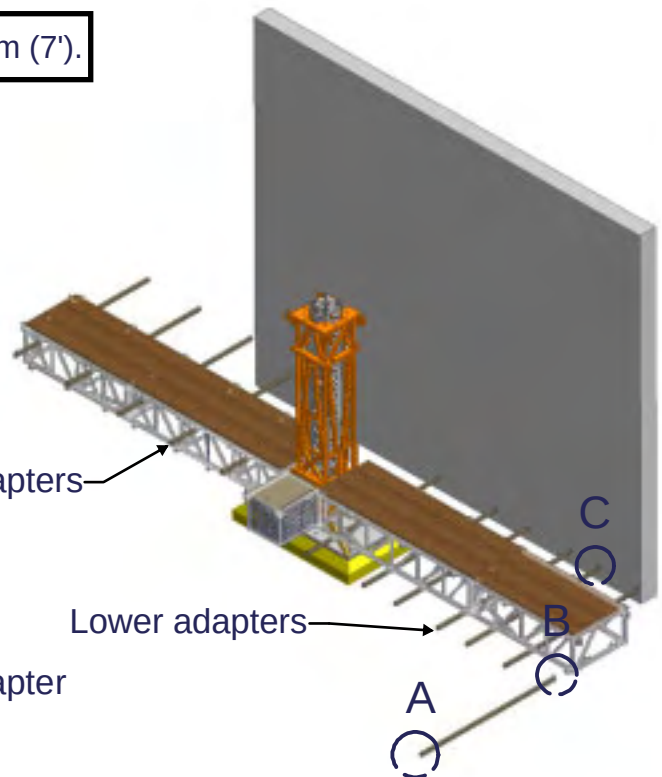
DETAIL-B

Pin with washer
25490088



Cotter pin

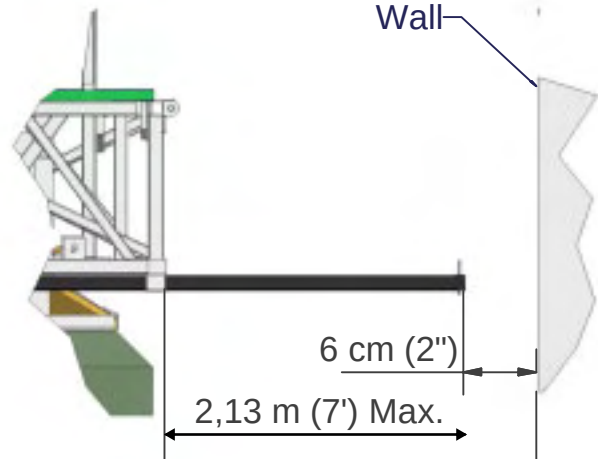
DETAIL-C



Upper adapters

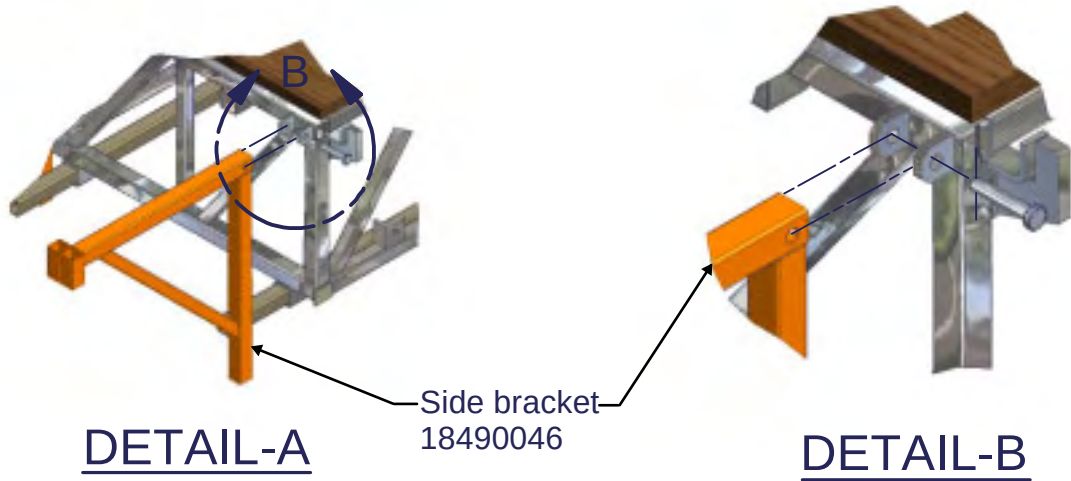
Lower adapters

Wall



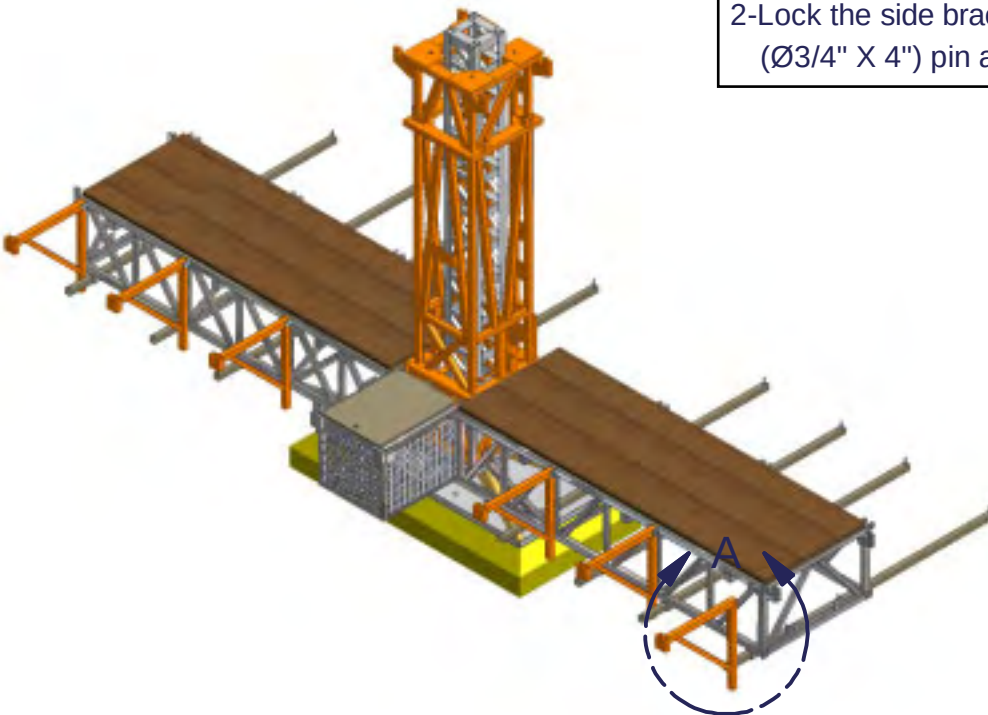
DETAIL-D

Side bracket

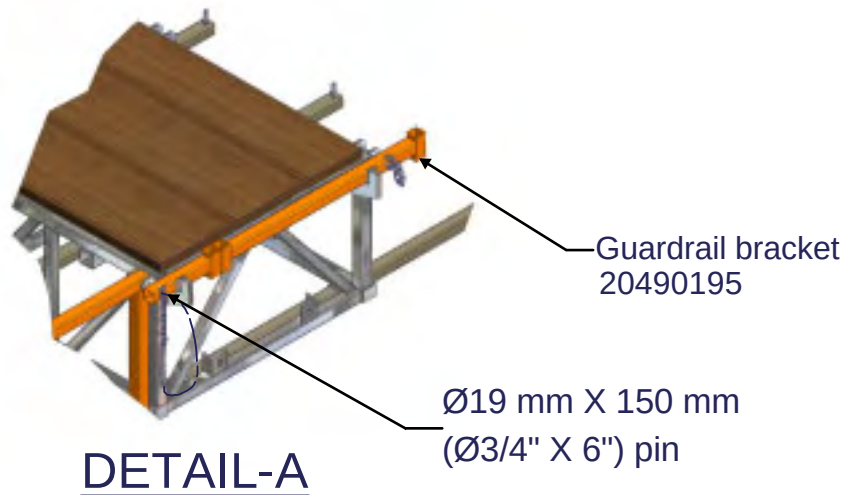


Installation

- 1-Insert the side bracket in the adapter. (DETAIL-A)
- 2-Lock the side bracket with a Ø19 mm X 100 mm (Ø3/4" X 4") pin and a cotter pin. (DETAIL-B)

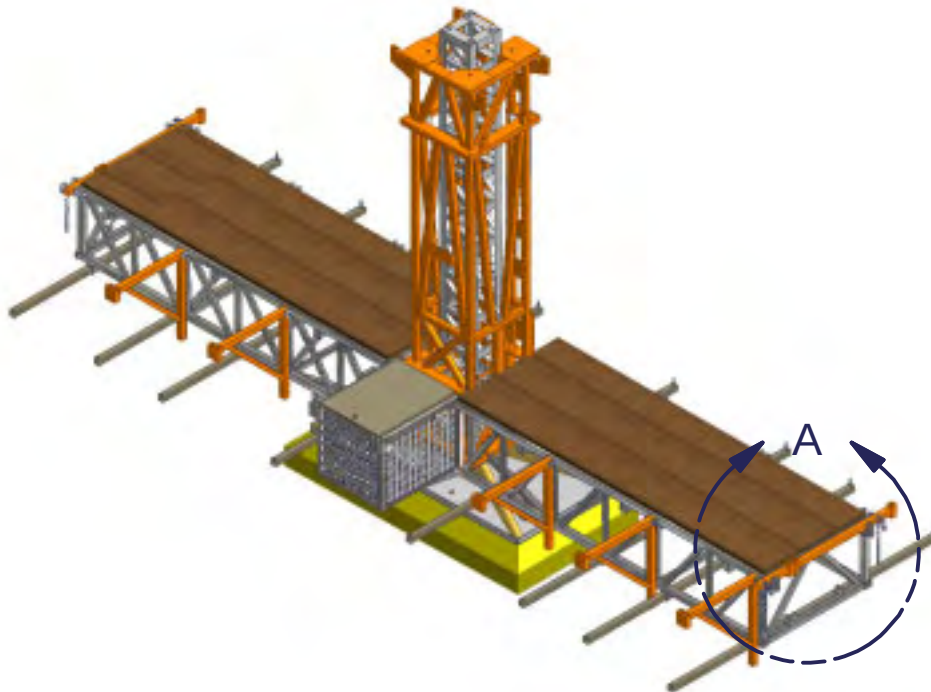


Guardrail bracket



Installation

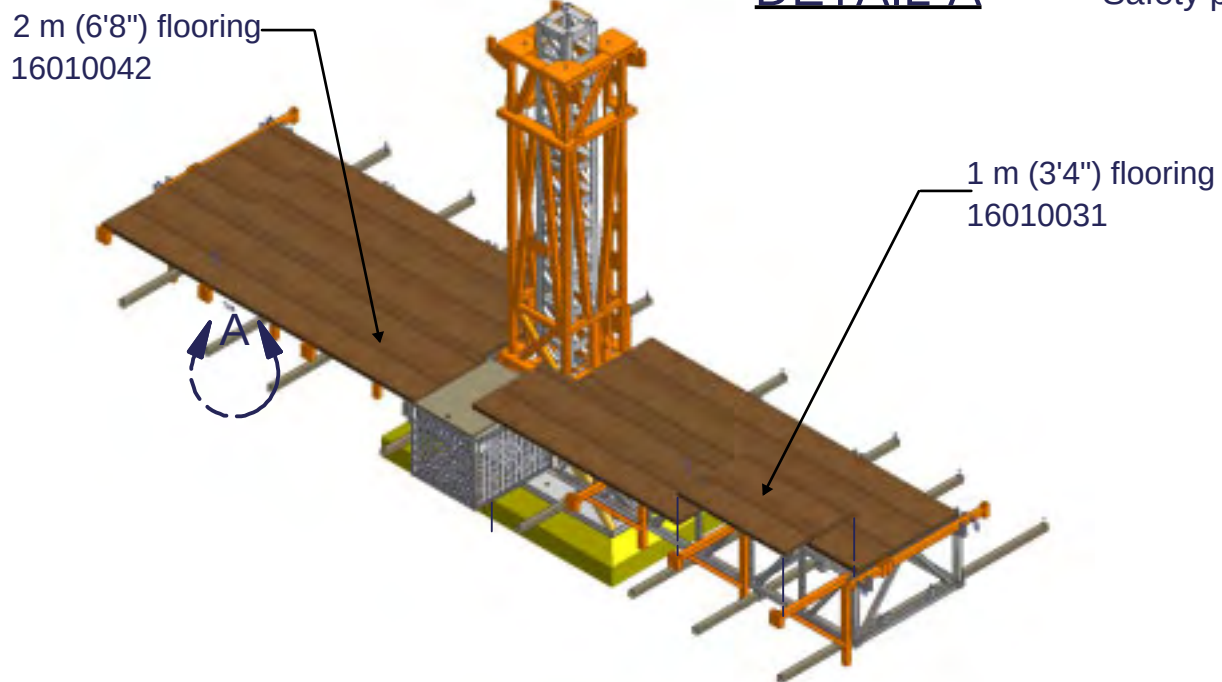
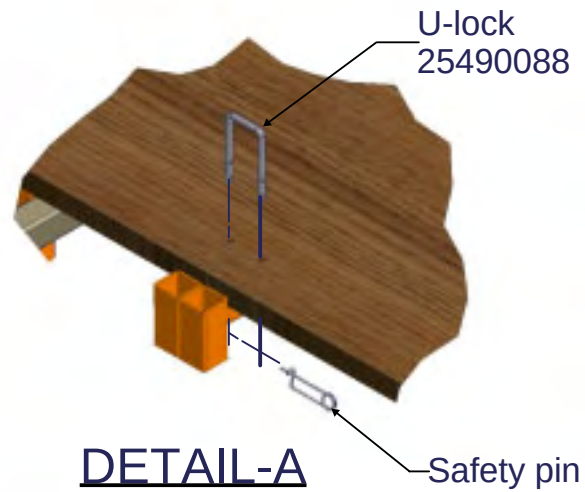
- 1-Install the guardrail bracket in the hooks at the end of the last extension section.
- 2-Secure the guardrail bracket and the side bracket with Ø19 mm X 150 mm (Ø3/4" X 6") pins and 2 cotter pins.



Flooring

Installation

- 1-Install the flooring on the side brackets in in order to cover the entire circulation zone.
- 2-Lock the flooring with a U-lock and a safety pin.



Flooring used regarding the lenght of platform

Flooring Platform lenght	1 m x 0,71 m (3'4" x 28")	2 m x 0,71 m (6'8" x 28")	2 m x 0,71m notched (6'8" x 28" notched)
1 m (3'4") extension	1		
2 m (6'8") extension		1	
3 m (10') extension	1	1	
4 m (13'4") extension		1	1
5 m (16'8") extension	1	1	1
9,14 m (30') bridge	1	4	
10,67 m (35') bridge		5	
12,19 m (40') bridge		6	
15,24 m (50') bridge		8	
16,76 m (55') bridge	1	8	
18,29 m (60') bridge		9	

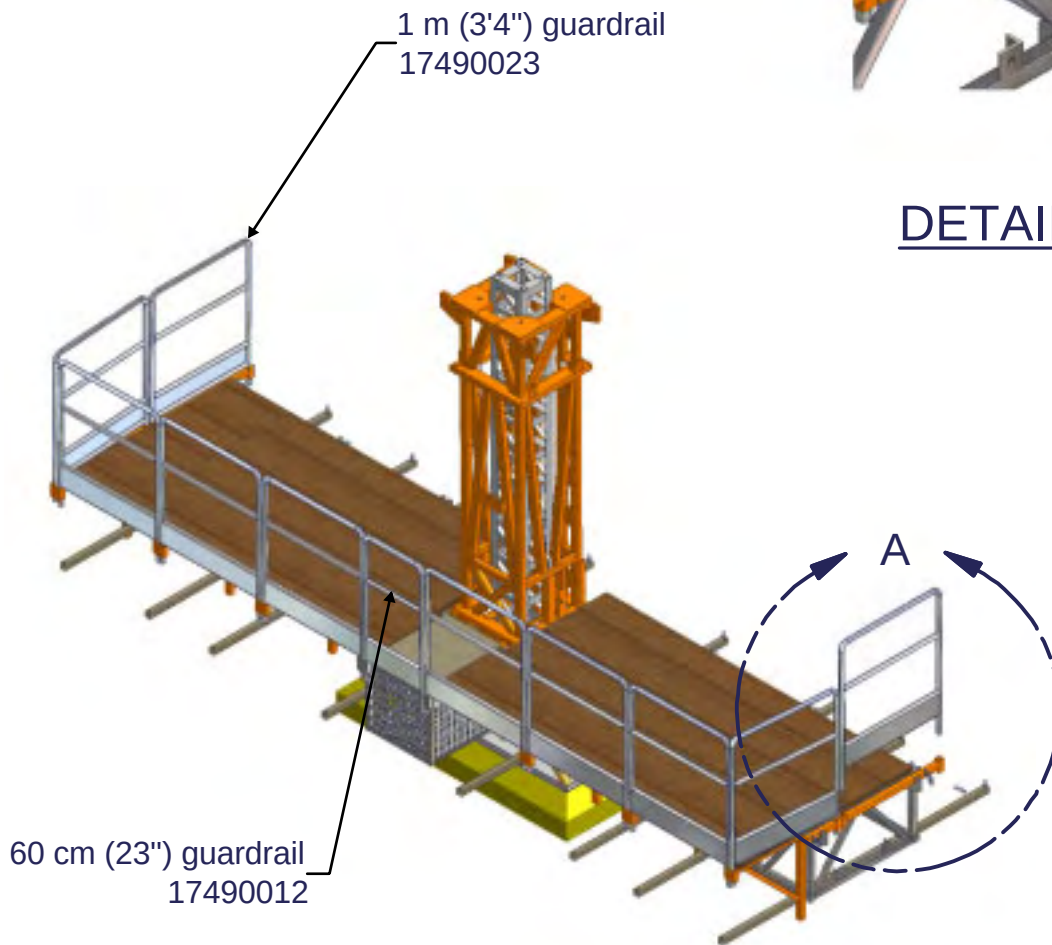
Guardrail

Installation

- 1-Install the guardrail in the side bracket and the guardrail bracket.
- 2-Install the guardrails wherever there might be a risk of falling.



DETAIL-A



Extensible guardrail & anti-skid steel plate

Installation

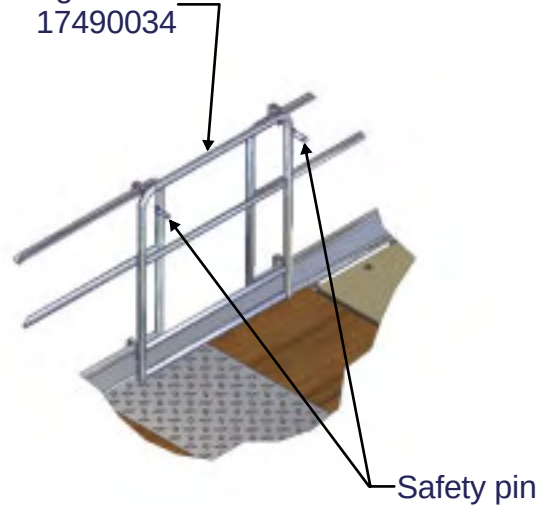
Extensible guardrail

- 1-Install the extensible guardrail on the existing guardrails where there are gaps.
- 2-Lock the extensible guardrail with 2 safety pins.
- 3-The safety pins must be re-installed each time the extensible guardrail is moved.

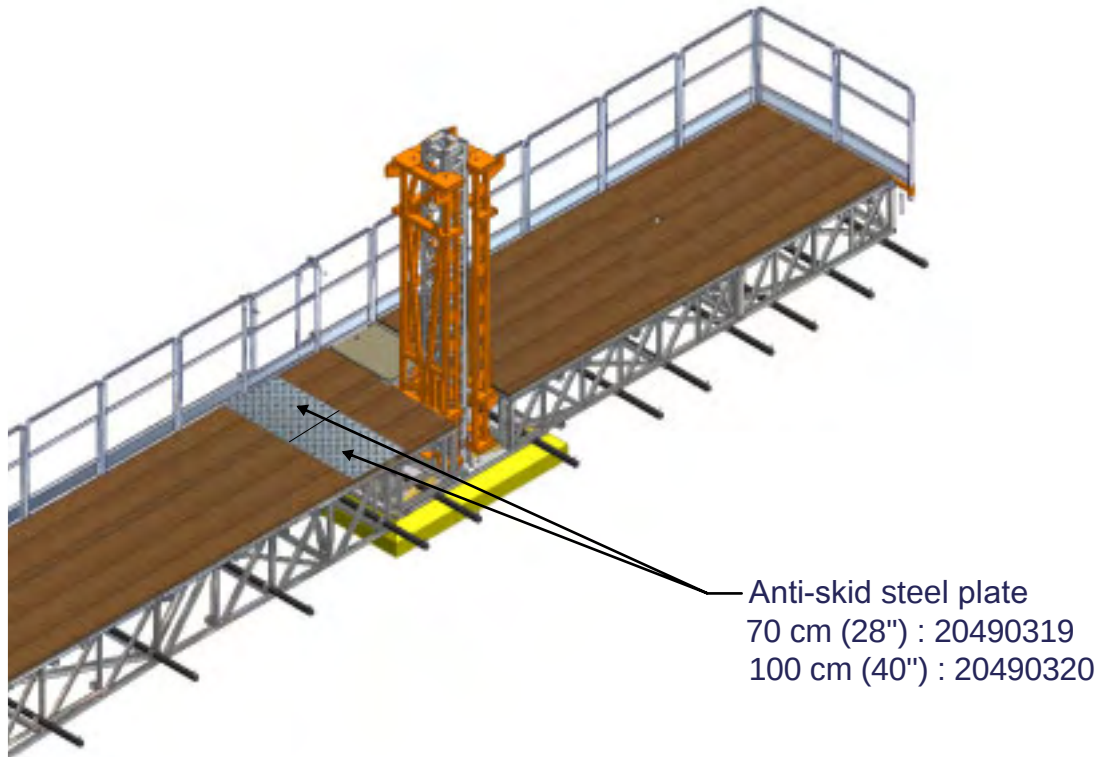
Anti-skid plate

- 1-Install the anti-skid plate on the gaps created by the bridge arms.
- 4-Secure them with screws or nails on one side only, to allow movement of the bridge arms.

Extensible guardrail
17490034



DETAIL-A



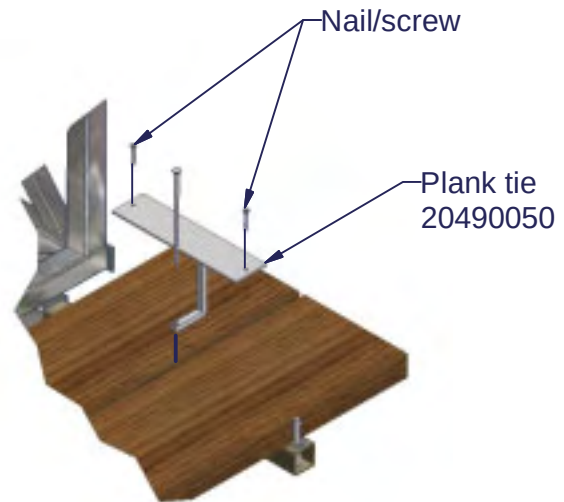
Plank tie

Installation

- 1-Install the plank ties so that they hold the outriggers and the planks together.
- 2-Nail or screw the plank ties to the planks so that they do not move.

Use only #1 category spruce or equivalent* having dimensions of 50 mm X 250 mm (2" x 10") 350 kg/m² (71.5 lbs/pi²) for a span less than 1,80 m (6').

*Use only planks approved by the local authorities



DETAIL-A

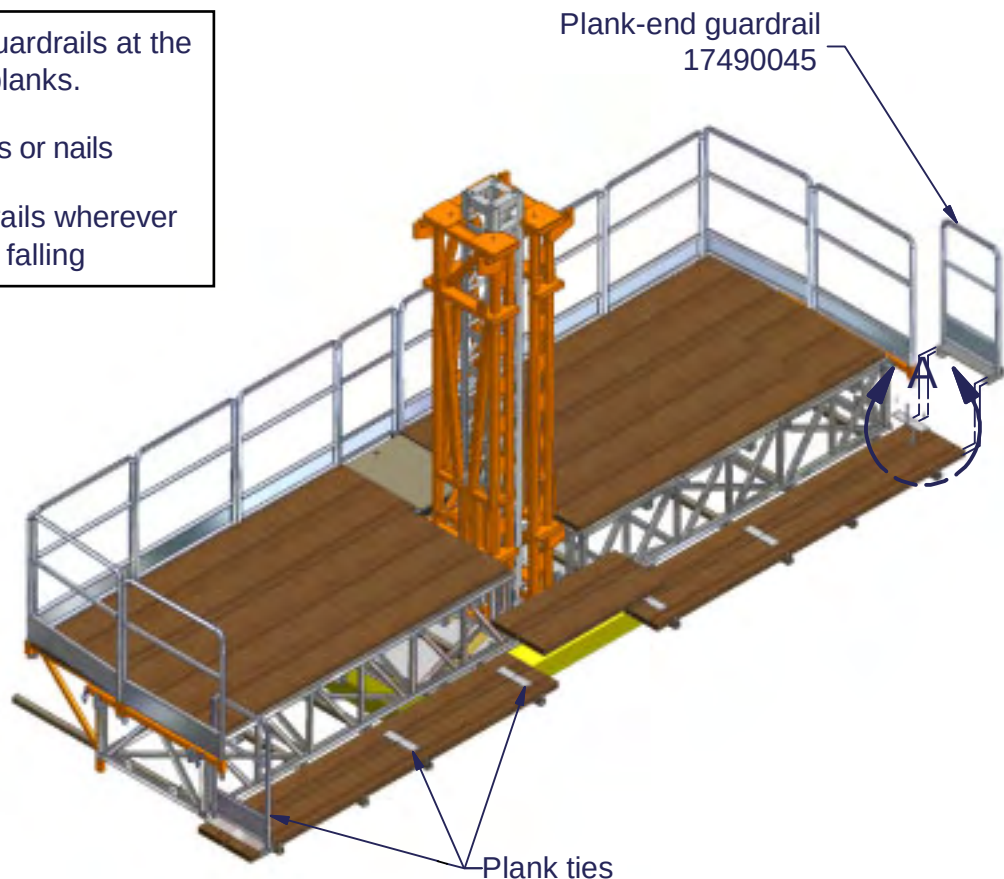
Plank-end guardrail

Installation

- 1 -Install the plank-end guardrails at the end of the work zone planks.
- 2-Secure them with screws or nails
- 3-Place plank-end guardrails wherever there might be a risk of falling

Warning

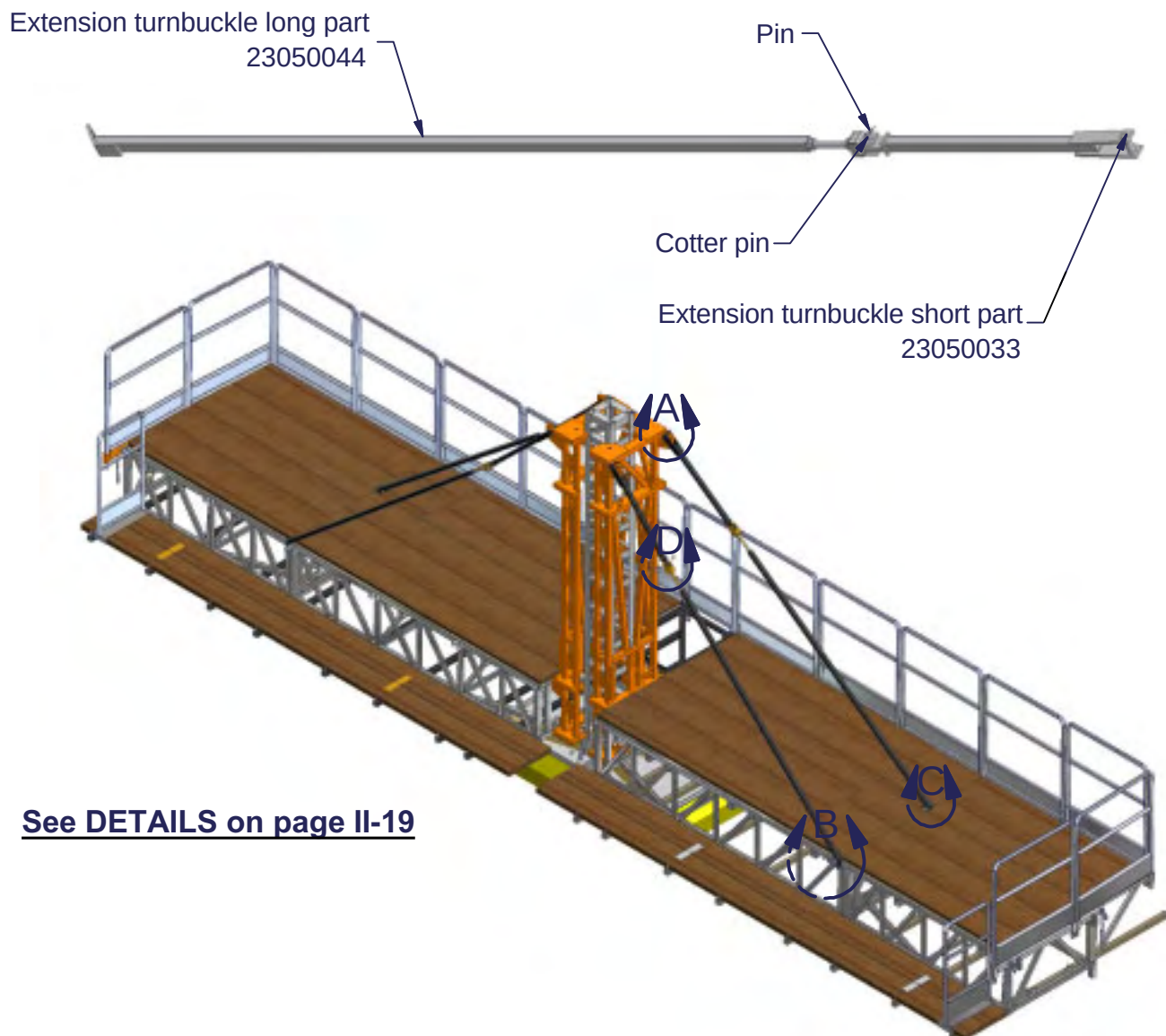
Never place any load on the planks at any time



Extension turnbuckle

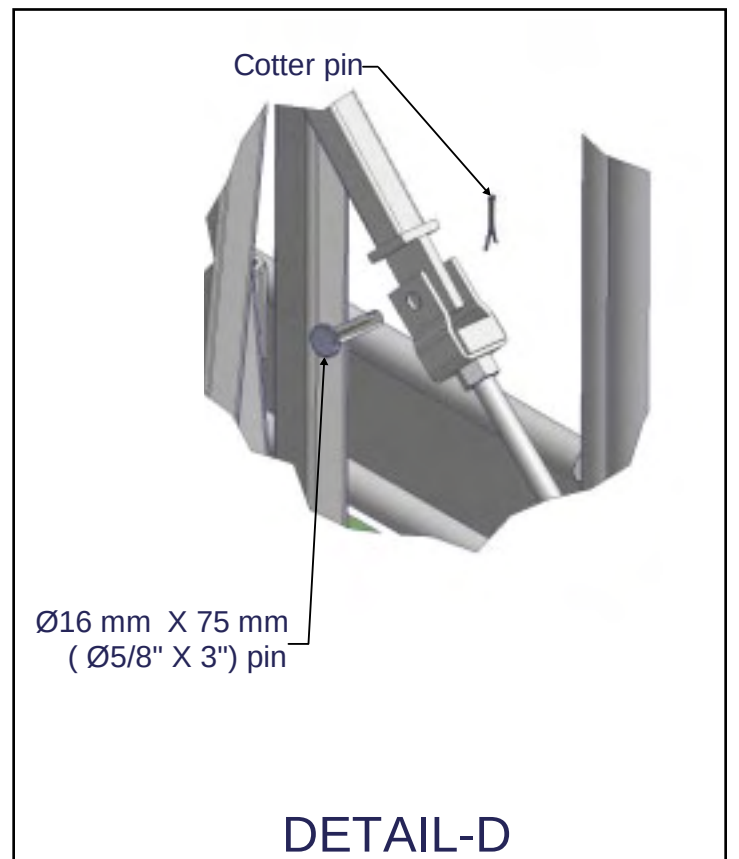
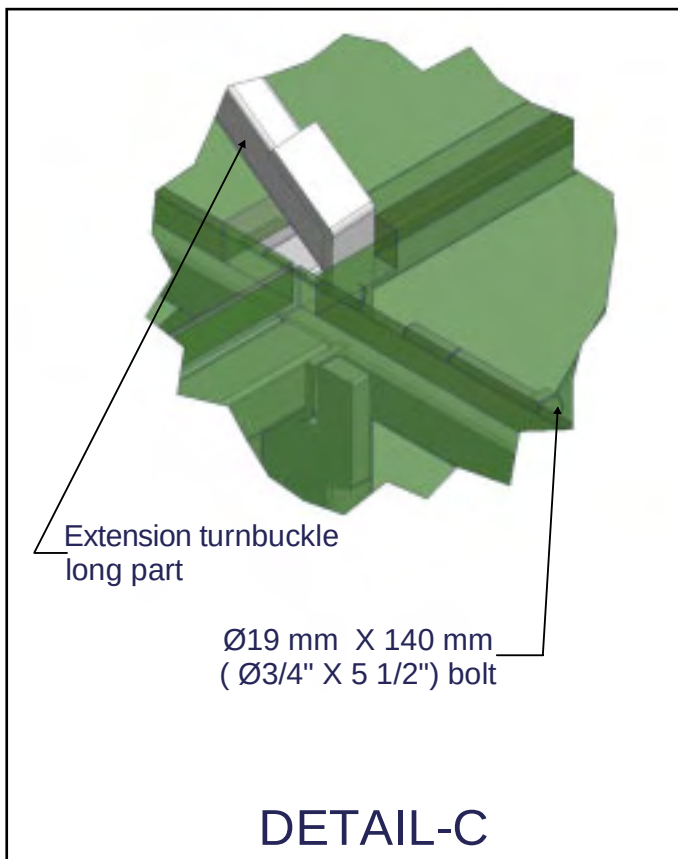
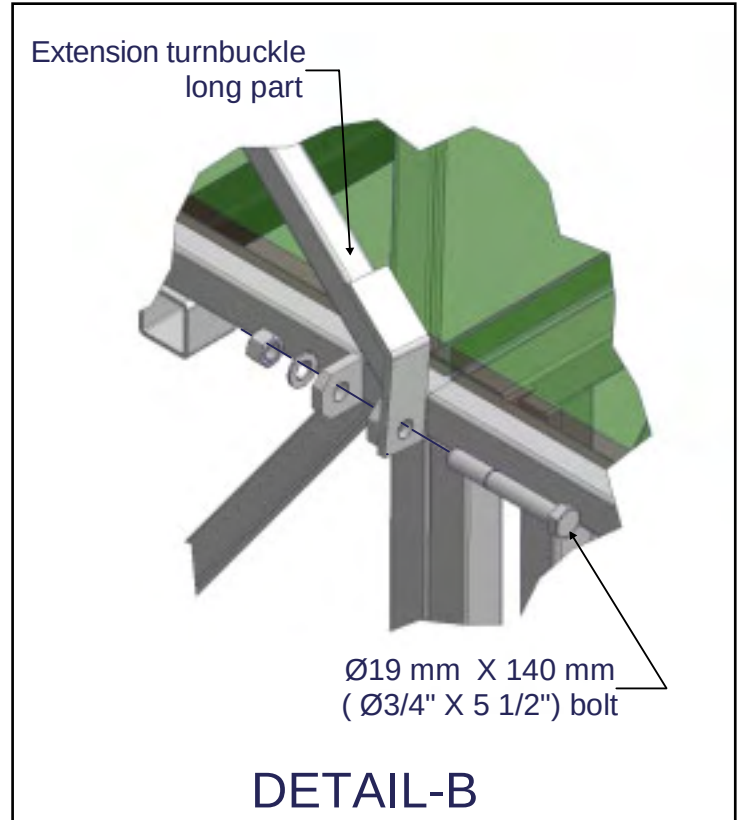
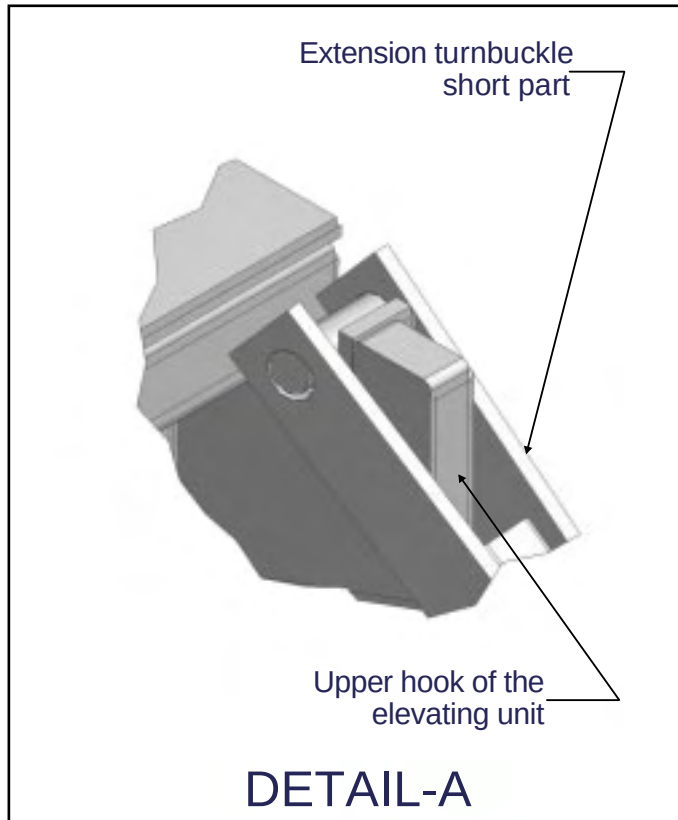
The extension turnbuckle is necessary for the 4 m (13'4") and longer extension.

- 1-Install the extension turnbuckle short part on the upper hooks of the elevating unit. (DETAIL-A)
- 2-Install the extension turnbuckle long part on the side bracket adapter with a Ø19 mm X 140 mm (Ø3/4" X 5 1/2") bolt. (DETAIL-B-C)
- 3-Join the long and short part of the extension turnbuckle with a Ø16 mm X 75 mm (5/8" X 3") pin and a cotter pin. (DETAIL-D)
- 4-Tighten the extension turnbuckle.



See DETAILS on page II-19

Extension turnbuckle (DETAILS)





Part III

Options/Miscellaneous

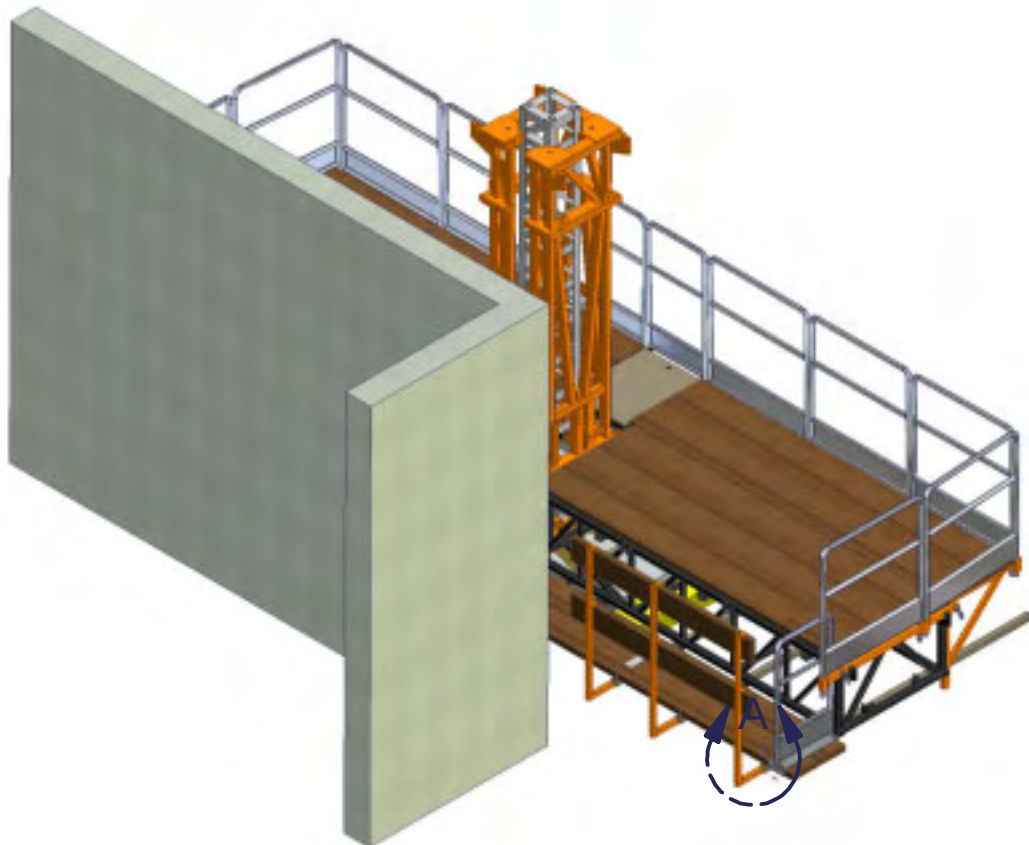
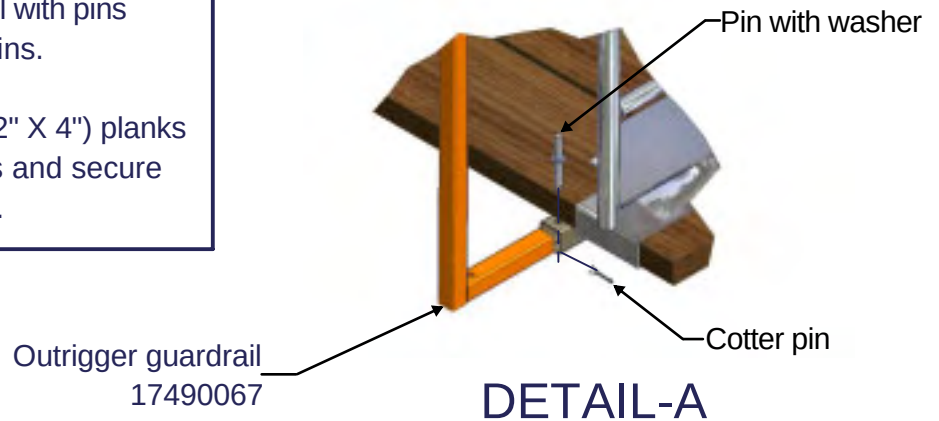
Outrigger guardrail

Installation

- 1-Install the outrigger guardrail at all the places required to prevent any risk of falling
- 2-Lock the outrigger guardrail with pins with washers and cotter pins.
- 3-Insert 50 mm X 100 mm (2" X 4") planks in the outrigger guardrails and secure them with screws or nails.

WARNING

Never place any load on the planks at any time



Outrigger tie

Always use 2 outrigger ties for each additional outrigger

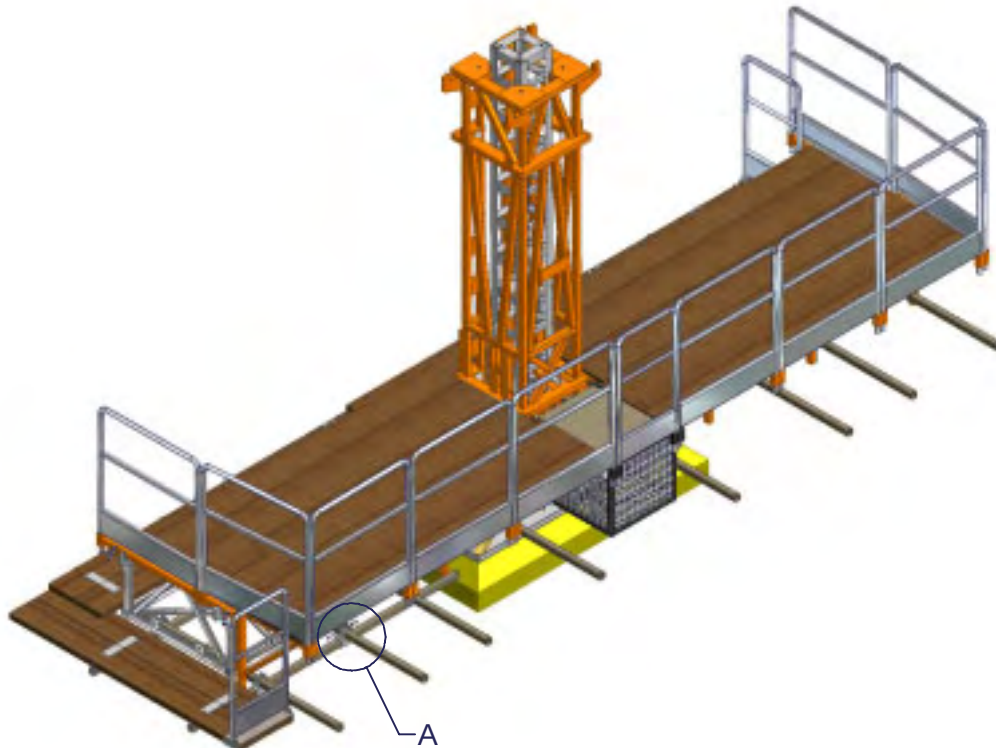
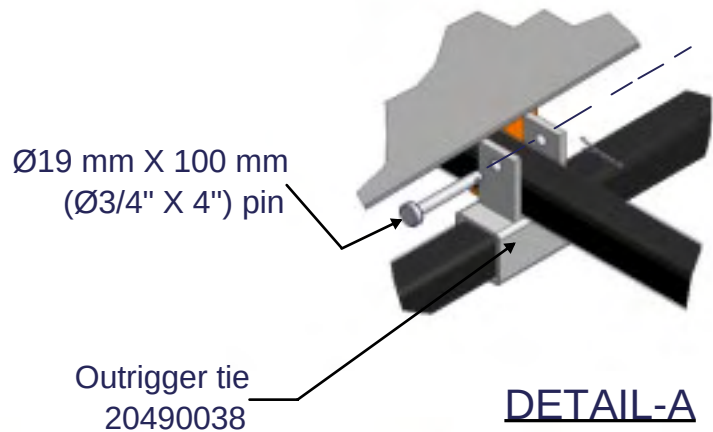
Installation

- 1-Install 2 outrigger ties on the previously installed outriggers.
- 2-Secure the ties with Ø19 mm X 100 mm (Ø3/4" X 4") pins and lock them with cotter pins.
- 3-Install pins with washers on the new outriggers. (page II-11)
- 4-Place planks on the new work area.

WARNING

Never place any load on the planks at any time.

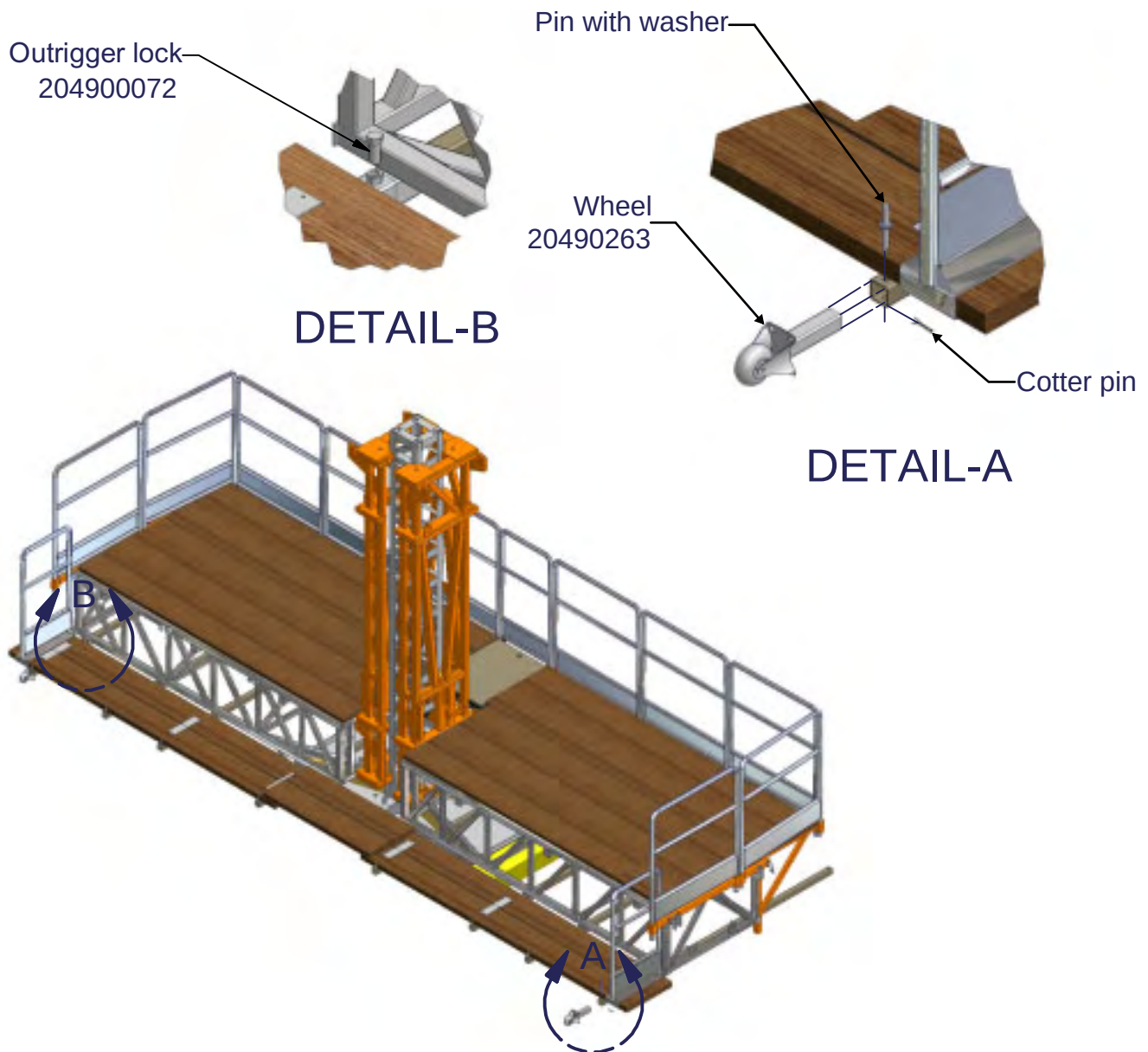
Installation only permitted for 1 m to 4m (3'4" to 13'4") extensions



Single mast locking system

Installation

- 1-Insert an outrigger lock on the outrigger furthest from the mast.
- 2-Insert the wheel at the end of the outriggers with outrigger locks.
- 3-Lock the wheel with a pin with washer and a cotter pin. (DETAIL-A)
- 4-Adjust the distance between the wheel and the wall to 3 cm (1 1/4").
- 5-Tighten the bolt on the outrigger lock. (DETAIL-B)



Self-erecting system

Installation

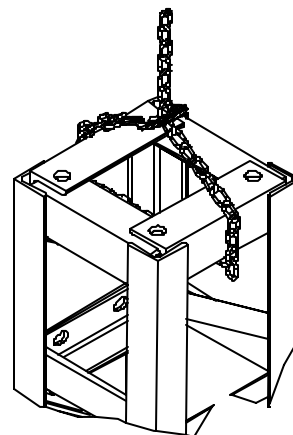
1-On the ground:

- A-Assemble the 3 self-erecting tubes.
- B-Lock each self-erecting tube with 2 pins with washer 36 mm (1 1/2") and 2 cotter pins.
- C-Install the winch support and secure with a safety pin.

2-Install the self-erecting system on the hydraulic unit. (DETAIL-A)

3-Lock the self-erecting system with 4 bolts 12mm Ø x 250mm (1/2" Ø x 10")

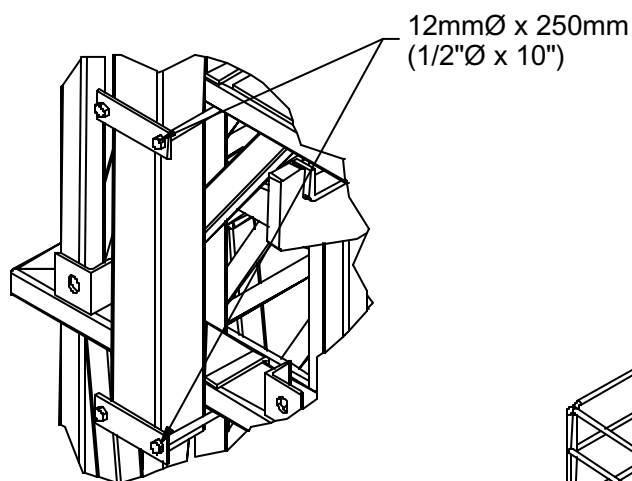
4-Follow the instructions on page IV-1 for the mast installation.



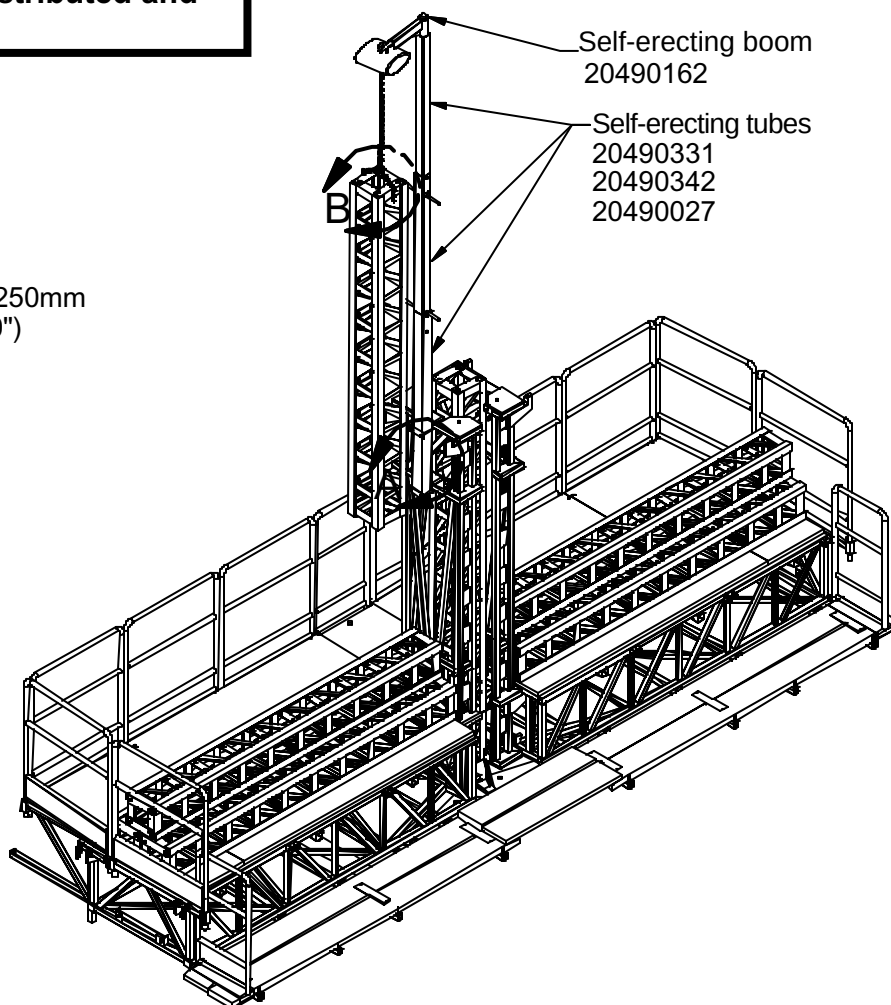
DETAIL-B

WARNING

When using a self-erecting system, the total permissible load is 1 818 kg (4 000 lbs) uniformly distributed and including workers.



DETAIL-A

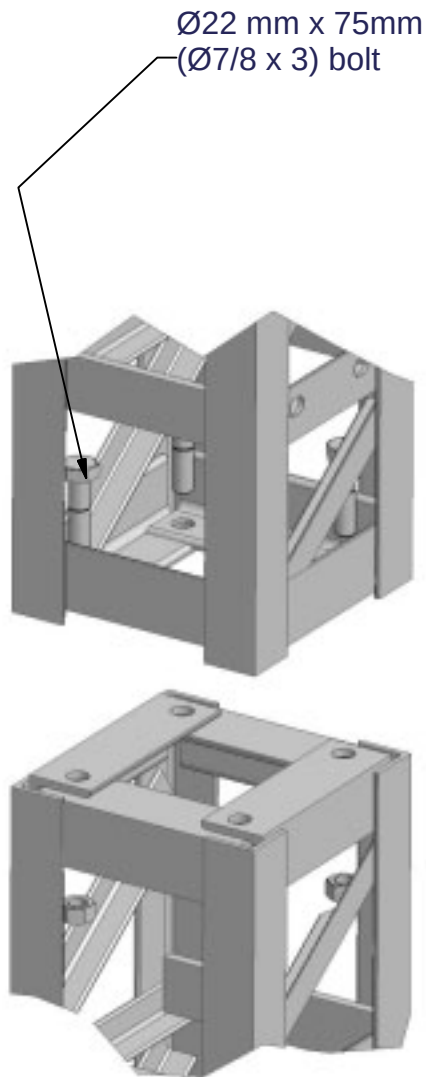




Part IV

Mast and anchor installation

Erection of a mast



Installation

- 1-Join the male and female sections.
- 2-Bolt them together with 4 bolts.

torque = 240 Newton*Meter
(180 foot-pound)

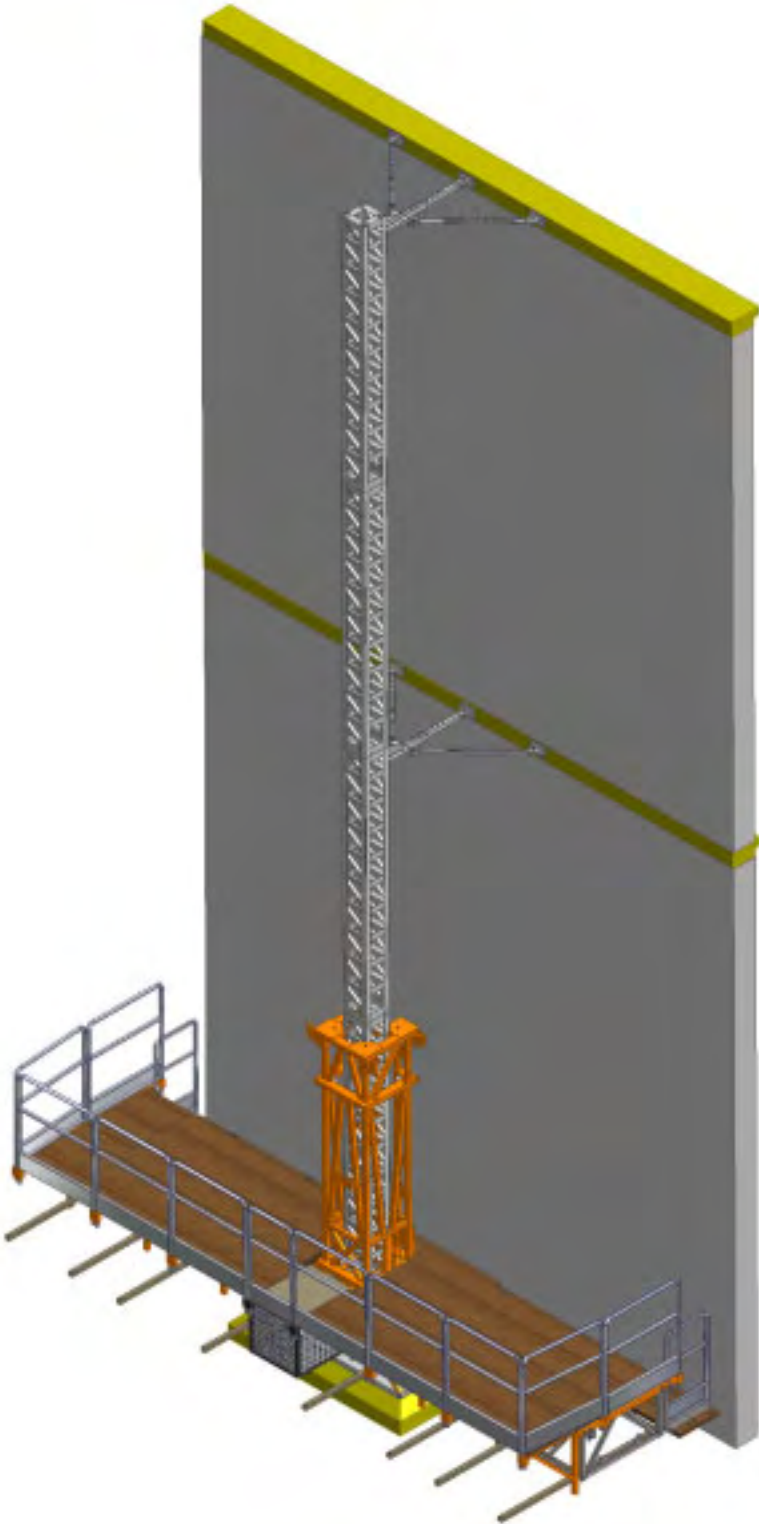
IMPORTANT

- 1-Do not add more than 3 mast sections (4 mast sections total) to the FRACO system. The maximum freestanding height is 11,58 m (38').
- 2-Use a fork lift, a boom truck or a FRACO self erecting system to install the masts.
- 3-Check to make sure that the holes for the anchors are on the same side on each mast section

Do not exceed the following vertical tolerances

- 1,25 cm (1/2") for a 3 m (10') mast.
- 2 cm (3/4") for a 6 m (20') mast.
- 2,5 cm (1") for the maximum mast height.

Anchor positions



IMPORTANT

- 1-With a ground base, the first anchor must be installed before:
Elevating the platform
Placing any load on the platform
- 2-Load the platform only with the mast sections required to reach the next anchor.
- 3-In a work situation, the platform must never go above the last anchor.*

FIRST ANCHOR:

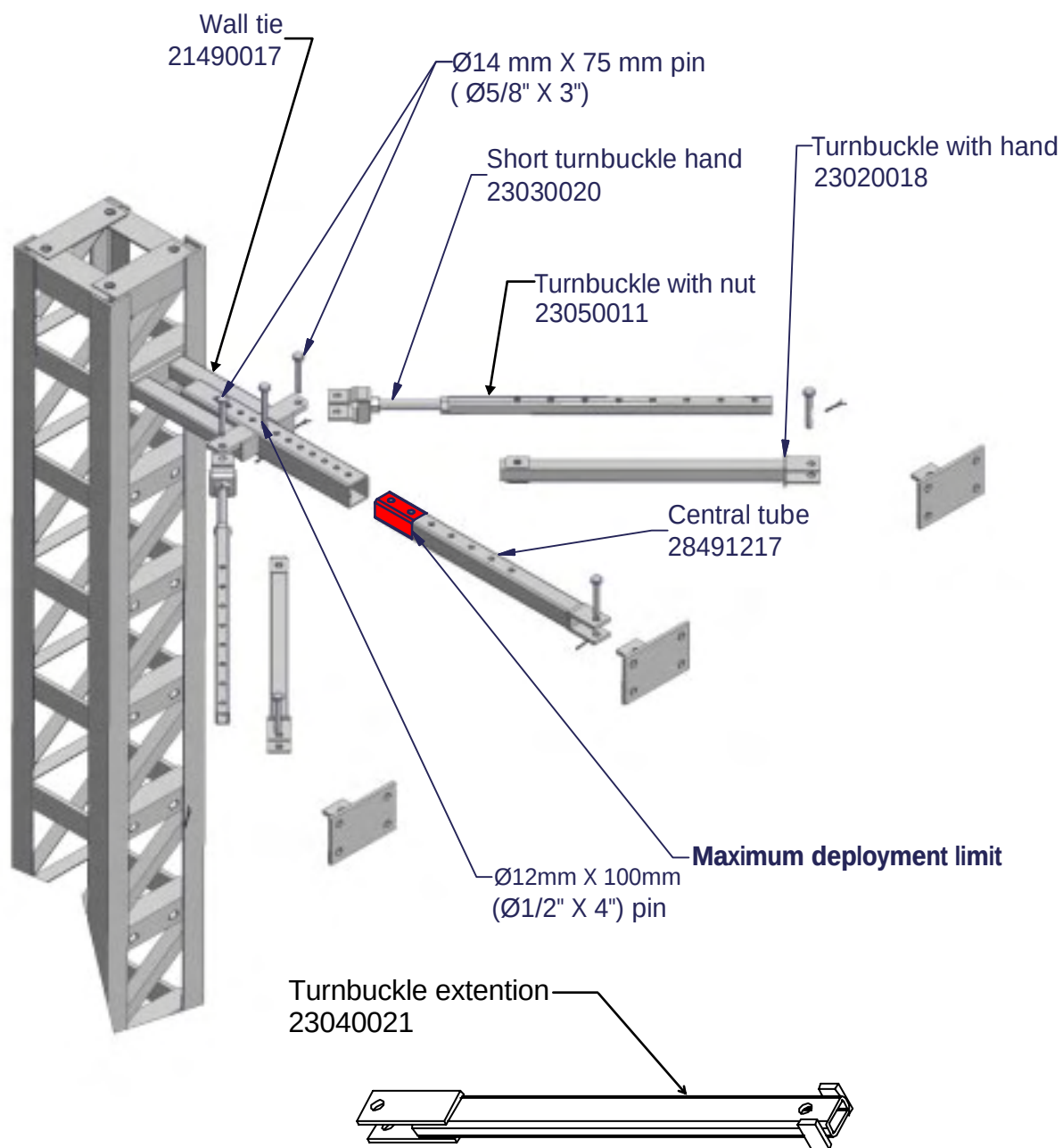
6 m (20') maximum from the ground

OTHER ANCHORS:

Maximum 6 m (20') between the anchors

*-TO INSTALL THE ANCHORS ONLY, it is permitted to exceed the last anchor by 6 m (20') with a load less than 1 364 kg (3 000 lbs), two men and tools when the first anchor is installed.

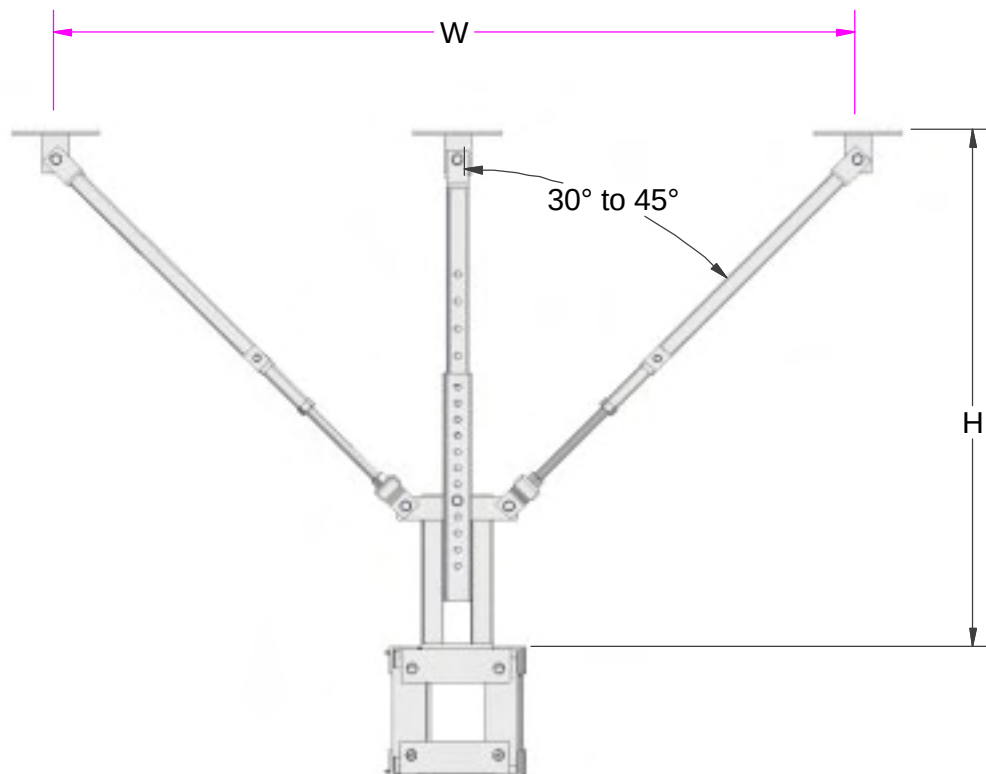
Anchor assembly



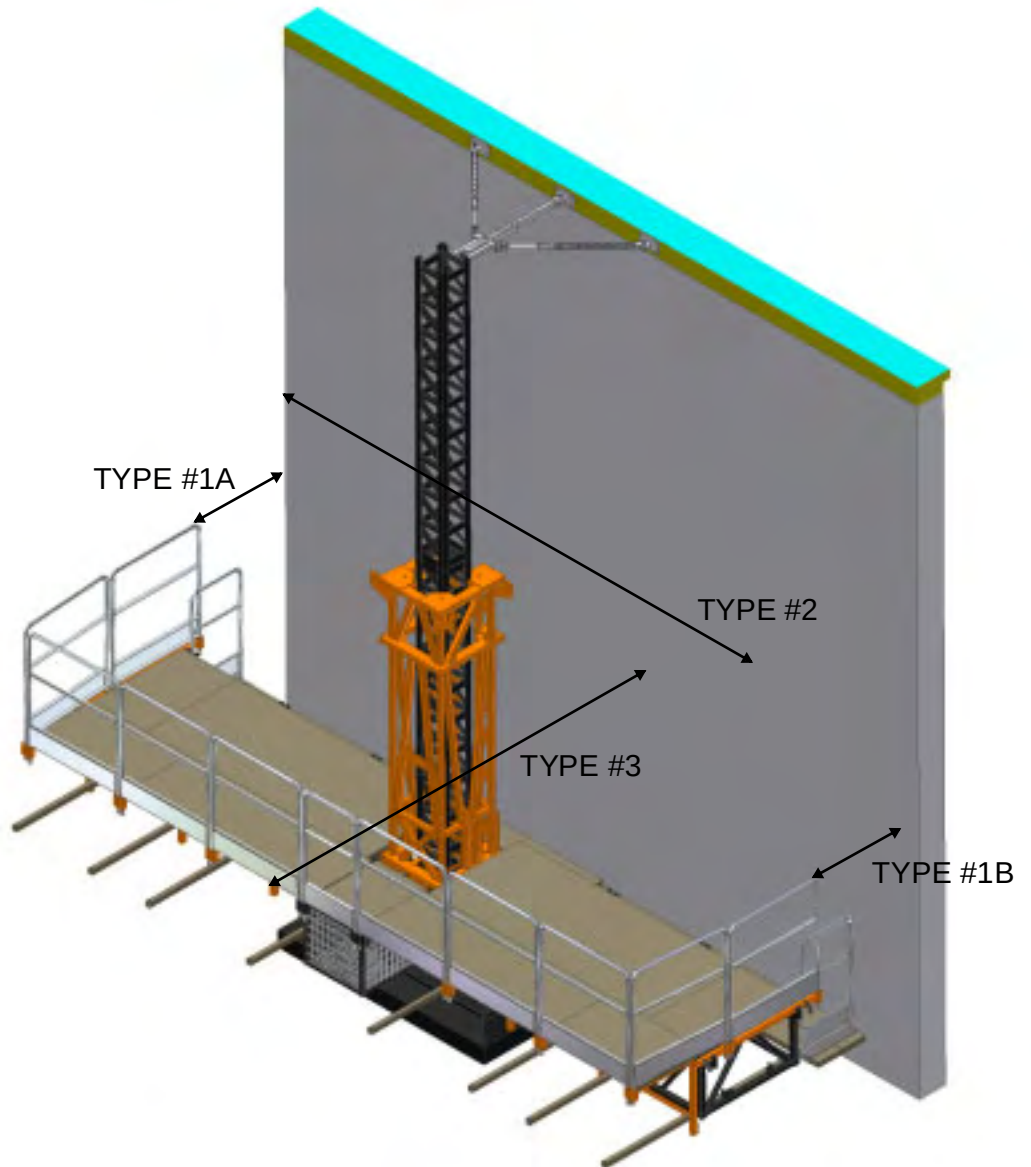
- The length of the central tube may vary depending on the needs.
- The turnbuckle may be extended with turnbuckle extension.

Minimum anchor opening relative to the distance from the wall

Central tube length	H (min)	H (max)	W (min) 30°	W (std) 45°
0,61 m (2')	0,76 m (2'6")		0,48 m (1'7")	0,81 m (2'8")
		1,19 m (3'11")	0,99 m (3'3")	1,70 m (5'7")
0,91 m (3')	1,07 m (3'6")		0,94 m (3'1")	1,42 m (4'8")
		1,50 m (4'11")	1,65 m (5'5")	2,31 m (7'7")
1,22 m (4')	1,37 m (4'6")		1,17 m (3'10")	2,03 m (6'8")
		1,80 m (5'11")	1,68 m (5'6")	2,92 m (9'7")
1,52 m (5')	1,68 m (5'6")		1,52 m (5')	2,69 m (8'10")
		2,11 m (6'11")	2,03 m (6'8")	3,53 m (11'7")
1,83 m (6')	1,98 m (6'6")		1,88 m (6'2")	3,25 m (10'8")
		2,41 m (7'11")	2,39 m (7'10")	4,14 m (13'7")



How to level the mast with the anchors



TYPE #1: Adjust the distance on both sides between the platform and the wall.

TYPE #2: Levelling the mast from left to right .

TYPE #3: Levelling the mast from front to back.

	TYPE #1		TYPE #2		TYPE #3	
Situation	1A<1B	1A>1B	Left	Right	Front	Back
A						
B						
C						
D						
E						
F						

Situations

A-Move the central tube to the left.

B-Move the central tube to the right.

C-Shorten the right turnbuckle and extend the left one.

D-Shorten the left turnbuckle and extend the right one.

E-Extend both turnbuckles and the central tube.

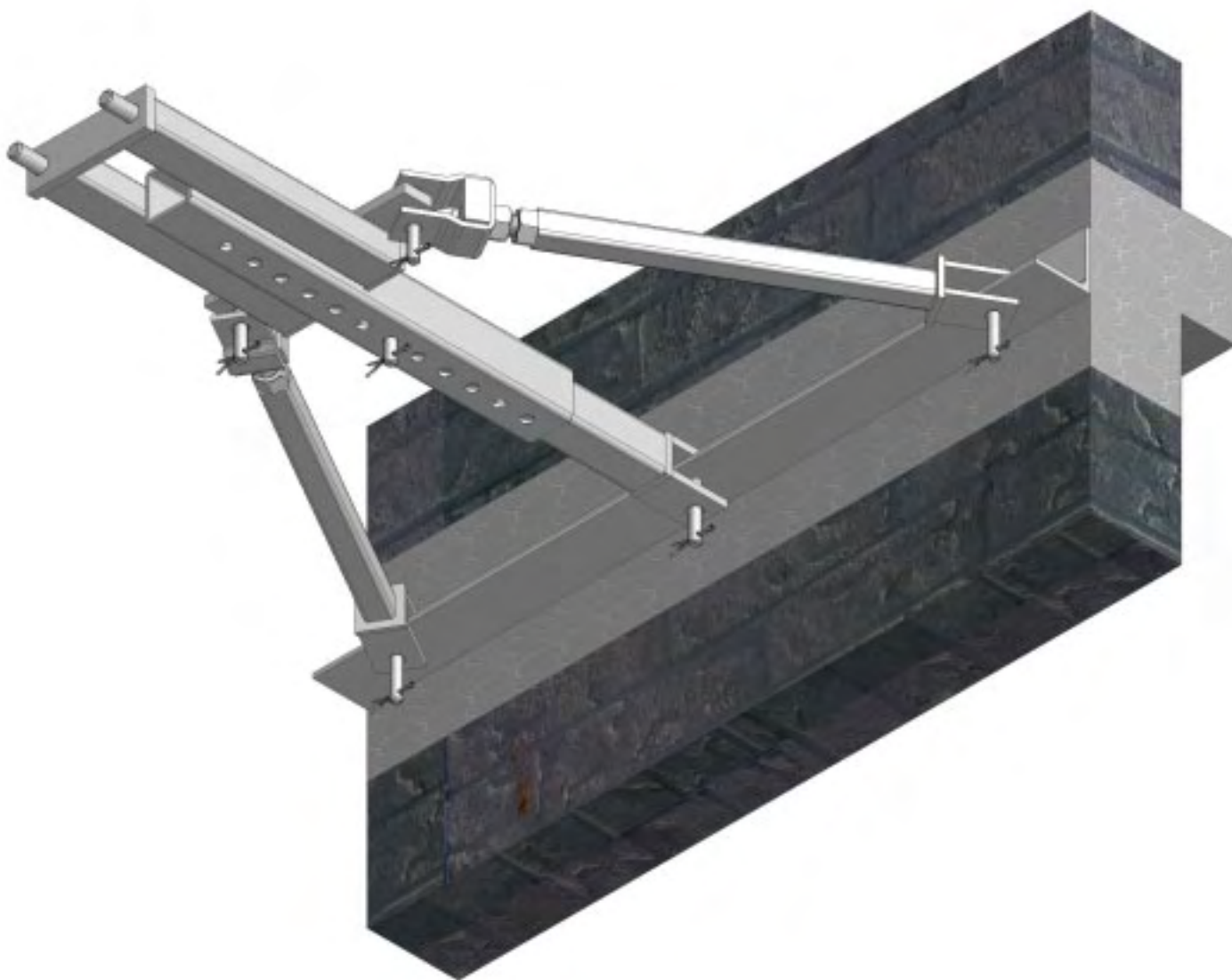
F-Shorten both turnbuckles and the central tube.

Anchor bolted to an angle iron

WARNING : Before making any modification to a structural component, have an engineer approve it.

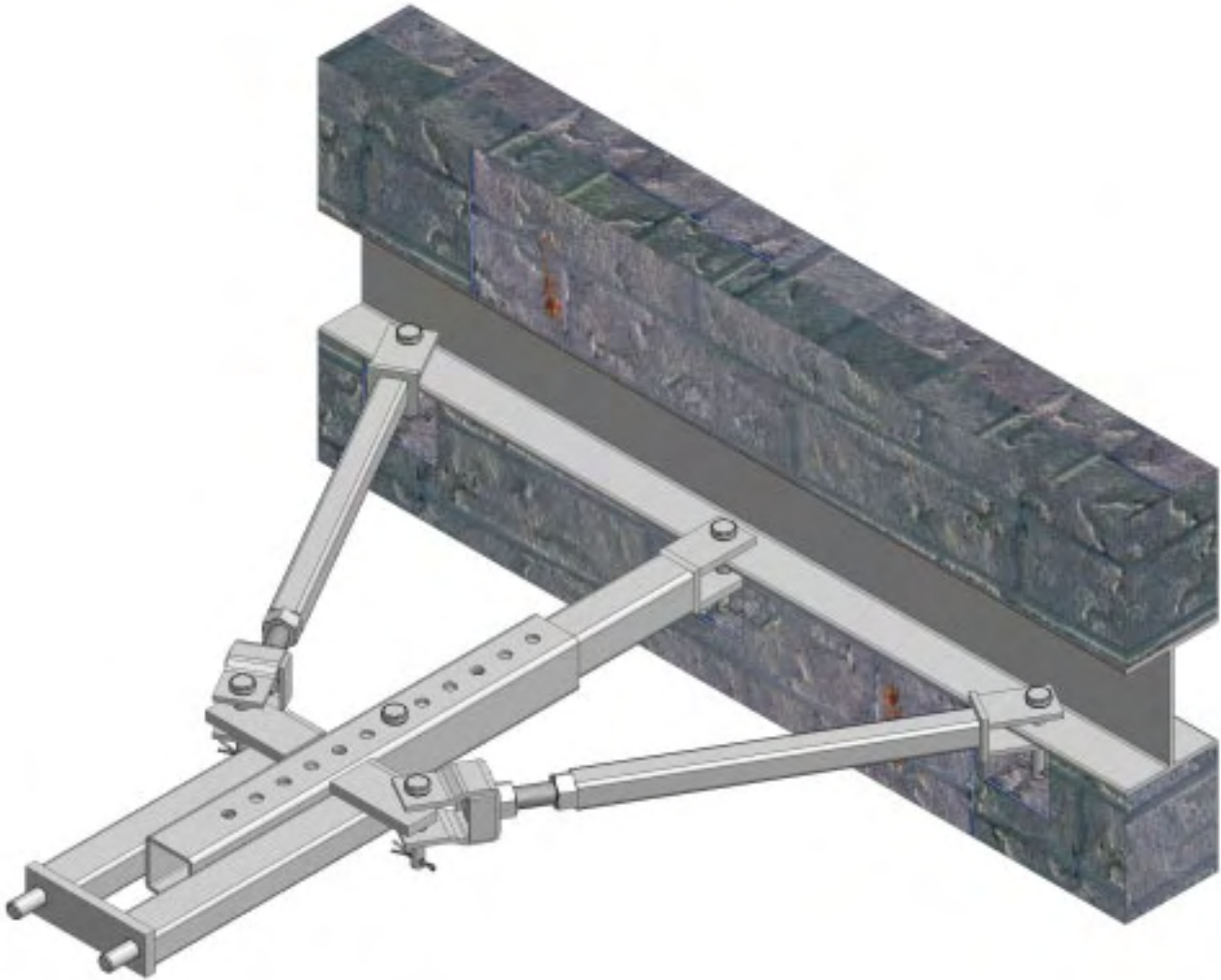
Installation

- 1-Install the wall tie and the central tube.
- 2-Locate the place to drill the holes for the turnbuckles using page IV-4.
- 3-Level the mast using the turnbuckles. (adjustment TYPE #2 & #3)
- 4-Drill a hole in the angle iron for the central tube. (adjustment TYPE #1)
- 5-Make sure all the pins are in place and are secured by cotter pins.
- 6-Lock the anchor in putting the turnbuckles in tension and the central tube in compression.



Anchor bolted to a structural H-beam

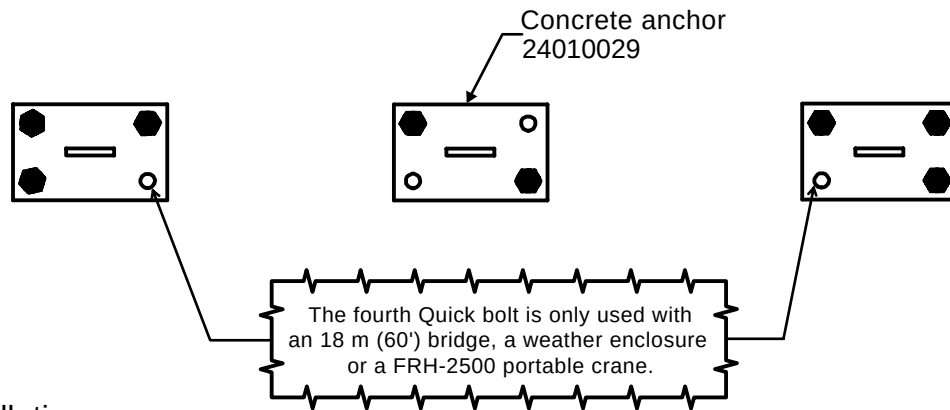
WARNING : Before making any modification to a structural component, have an engineer approve it.



Installation

- 1-Install the wall tie and the central tube.
- 2-Locate the place to drill the holes for the turnbuckles using page IV-4.
- 3-Level the mast using the turnbuckles. (adjustment TYPE #2 & #3)
- 4-Drill a hole in the structural H-beam for the central tube. (adjustment TYPE #1)
- 5-Make sure that all the pins are in place and are secured by cotter pins.
- 6-Lock the anchor in putting the turnbuckles in tension and the central tube in compression.

Anchor for a concrete structure or beam

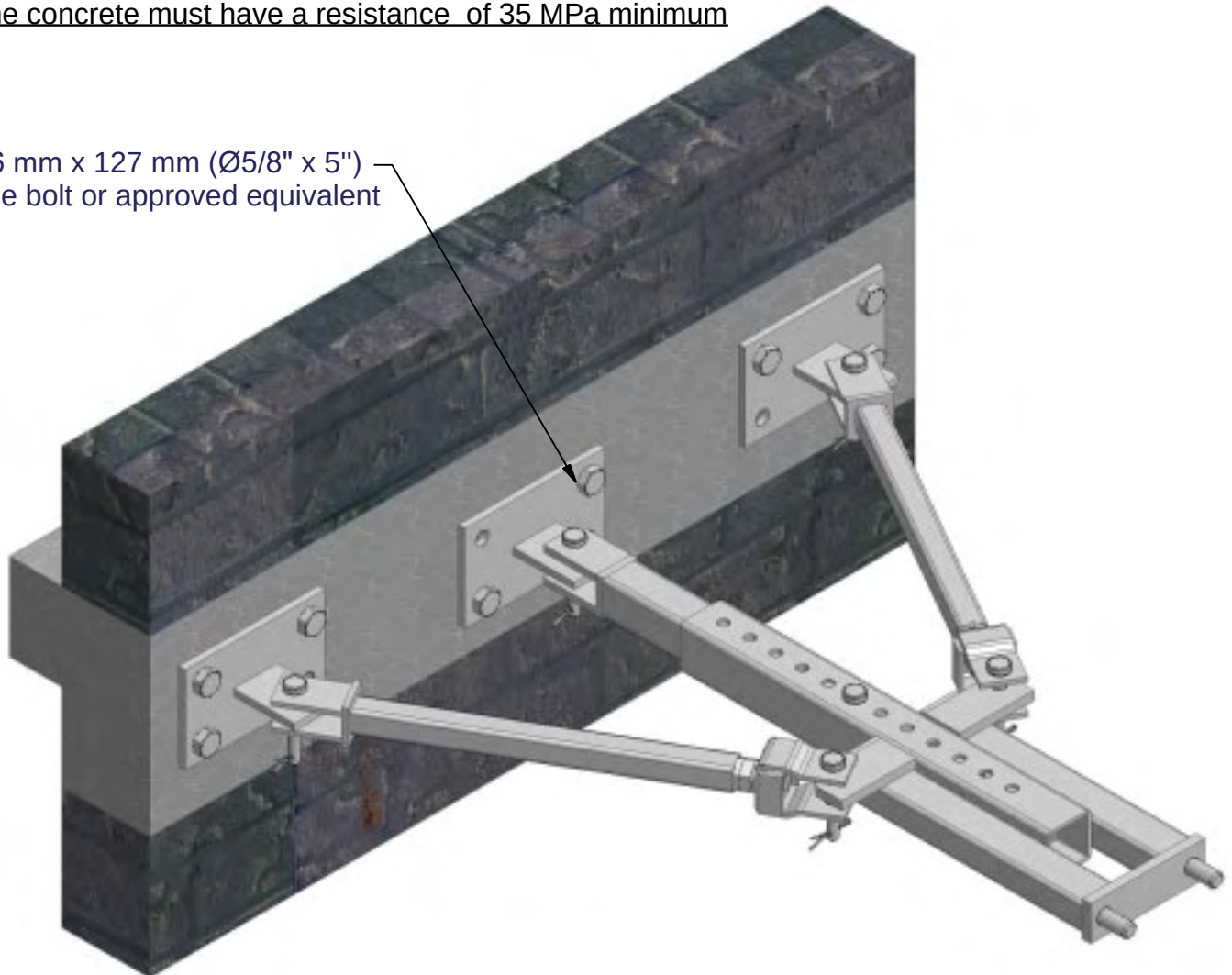


Installation:

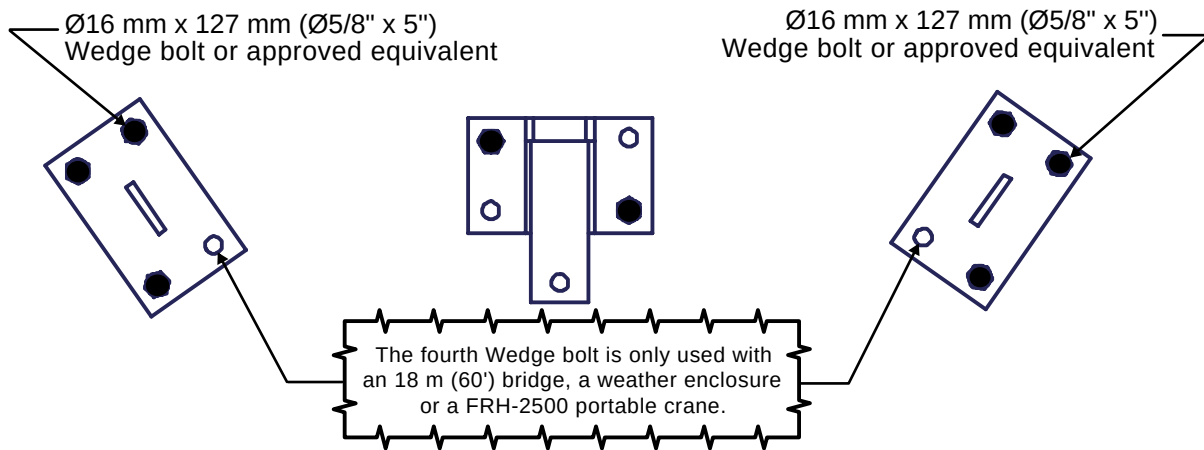
- 1-Install the wall tie and the central tube.
- 2-Locate the place to install the concrete anchors for the turnbuckles using page IV-4.
- 3-Plumb the mast using the turnbuckles. (adjustment TYPE #2 & #3)
- 4-Install the concrete anchor for the central tube. (adjustment TYPE #1)
- 5-Make sure that all the pins are in place and are secured by cotter pins.
- 6-Lock the anchor in putting the turnbuckles in tension and the central tube in compression.

The concrete must have a resistance of 35 MPa minimum

Ø16 mm x 127 mm (Ø5/8" x 5")
Wedge bolt or approved equivalent



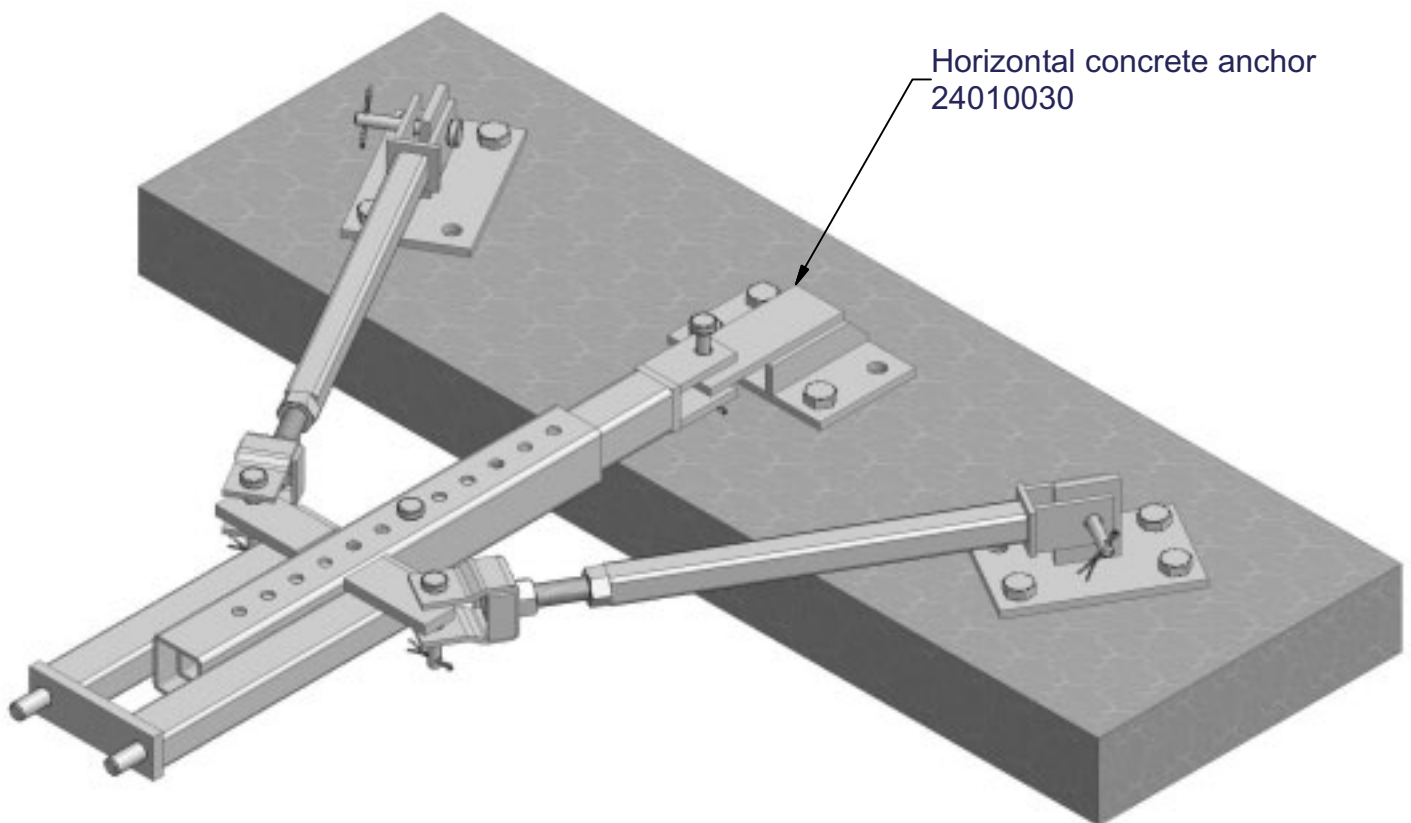
Horizontal anchor for concrete structure



Installation:

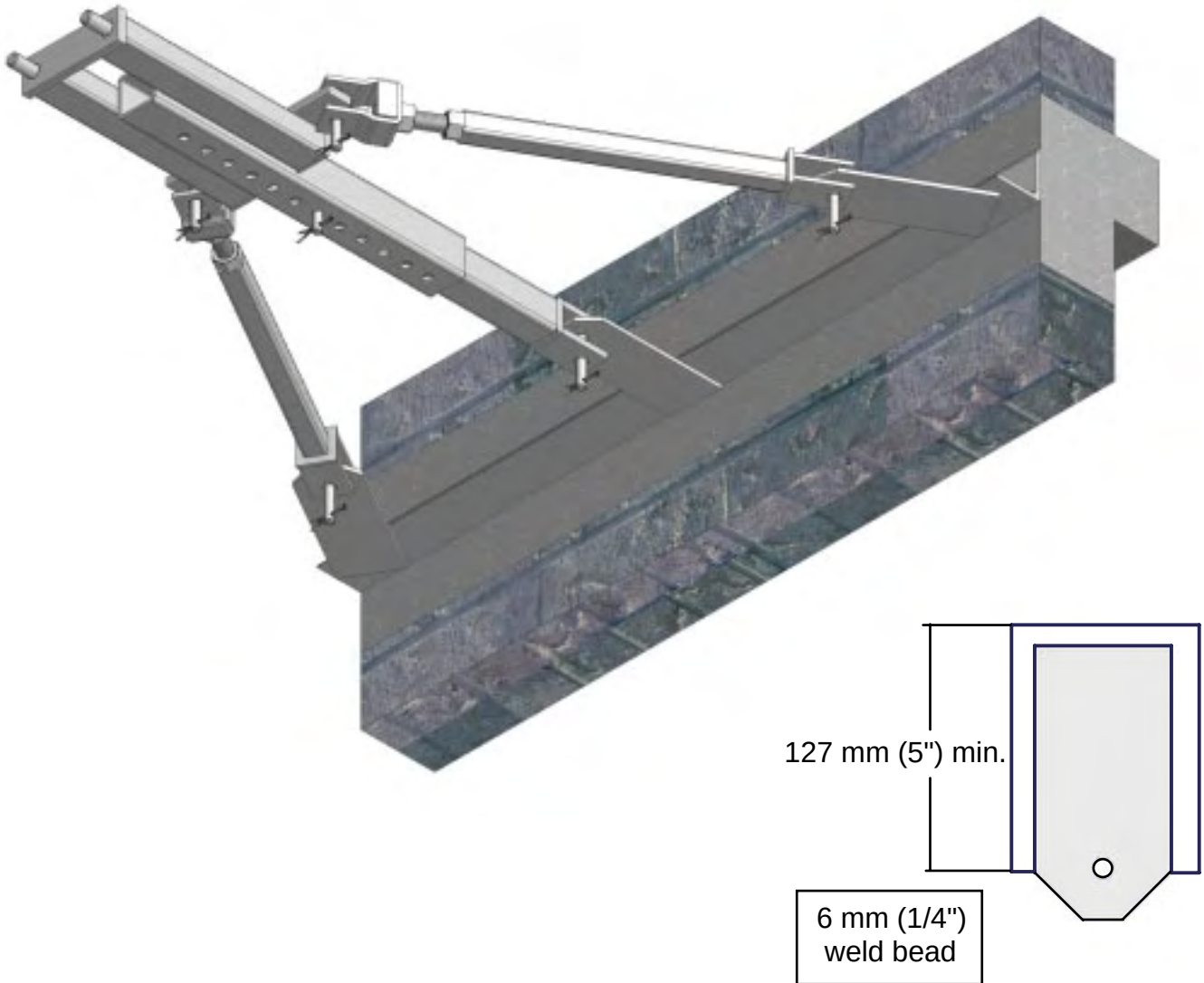
- 1-Install the wall tie and the central tube.
- 2-Locate the place to install the concrete anchors for the turnbuckles using page IV-4.
- 3-Level the mast using the turnbuckles. (adjustment TYPE #2 & #3)
- 4-Install the horizontal anchor for the central tube. (adjustment TYPE #1)
- 5-Make sure that all the pins are in place and are secured by cotter pins.
- 6-Lock the anchor in putting the turnbuckles in tension and the central tube in compression.

The concrete must have a resistance of 35 MPa minimum



Anchor welded to an angle iron

WARNING : Before making any modification to a structural component, have an engineer approve it.

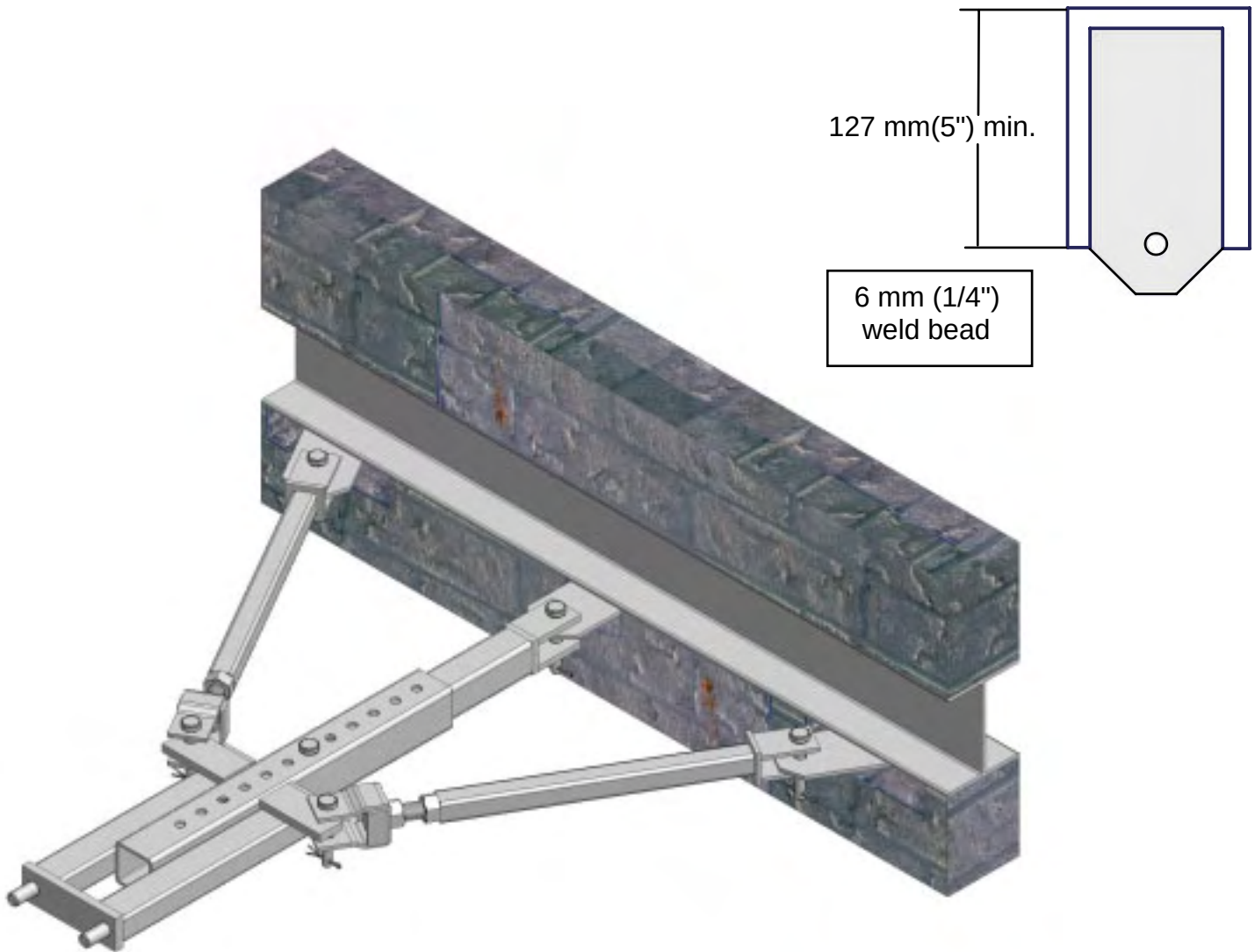


Installation

- 1-Install the wall tie and the central tube.
- 2-Locate the place to weld the plates for the turnbuckles using page IV-4.
- 3-Level the mast using the turnbuckles. (adjustment TYPE #2 & #3)
- 4-Weld the plate for the central tube on the angle iron. (adjustment TYPE #1)
- 5-Make sure that all the pins are in place and are secured by cotter pins.
- 6-Lock the anchor in putting the turnbuckles in tension and the central tube in compression.

Anchor welded to a structural H-beam

WARNING : Before making any modification to a structural component, have an engineer approve it.



Installation

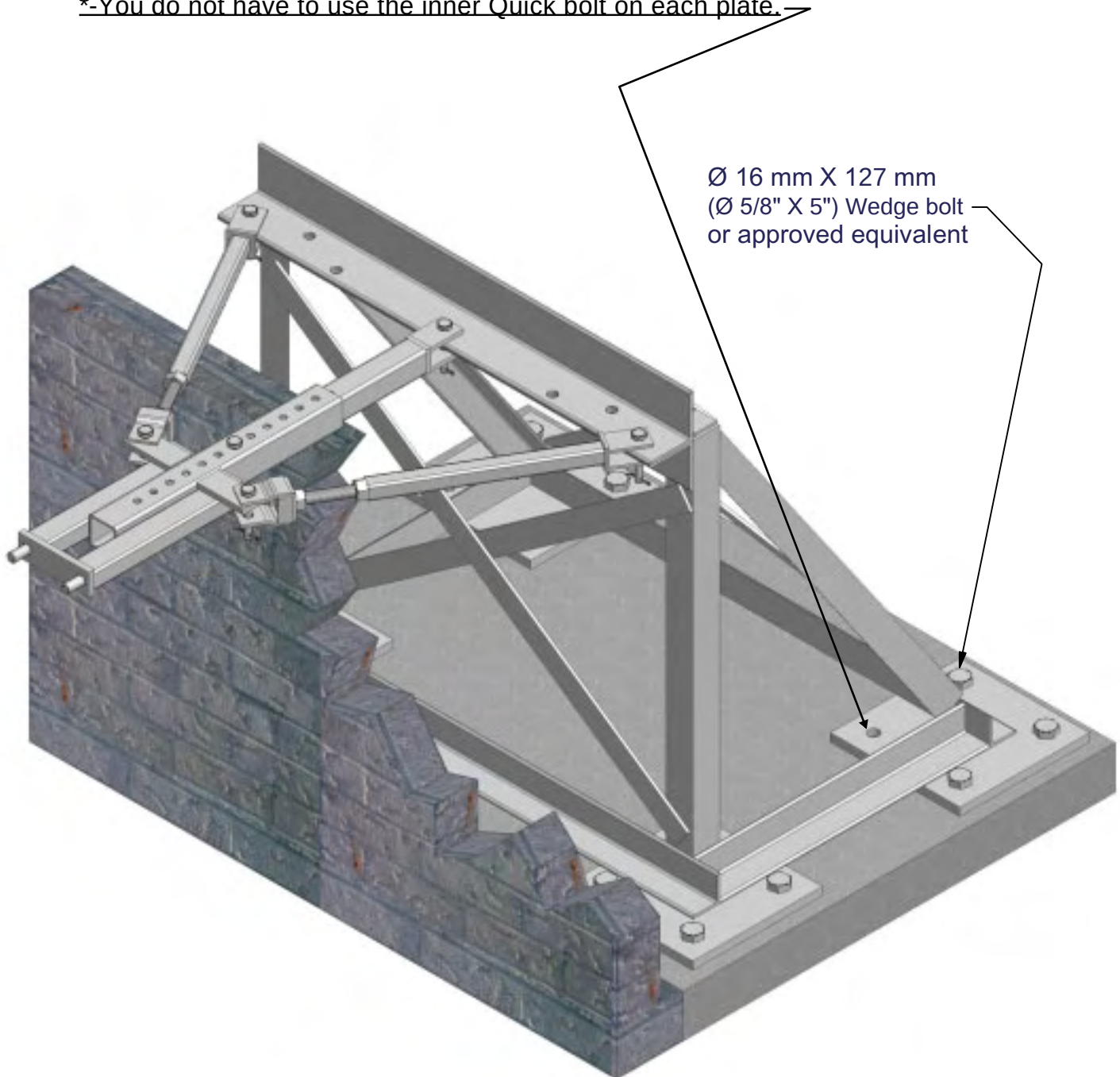
- 1-Install the wall tie and the central tube.
- 2-Locate the place to weld the plates for the turnbuckles using page IV-4.
- 3-Plumb the mast using the turnbuckles. (adjustment TYPE #2 & #3)
- 4-Weld the plate on the structural H-beam for the central tube. (adjustment TYPE #1)
- 5-Make sure that all the pins are in place and are secured by cotter pins.
- 6-Lock the anchor in putting the turnbuckles in tension and the central tube in compression.

Anchoring box for concrete floor

Installation:

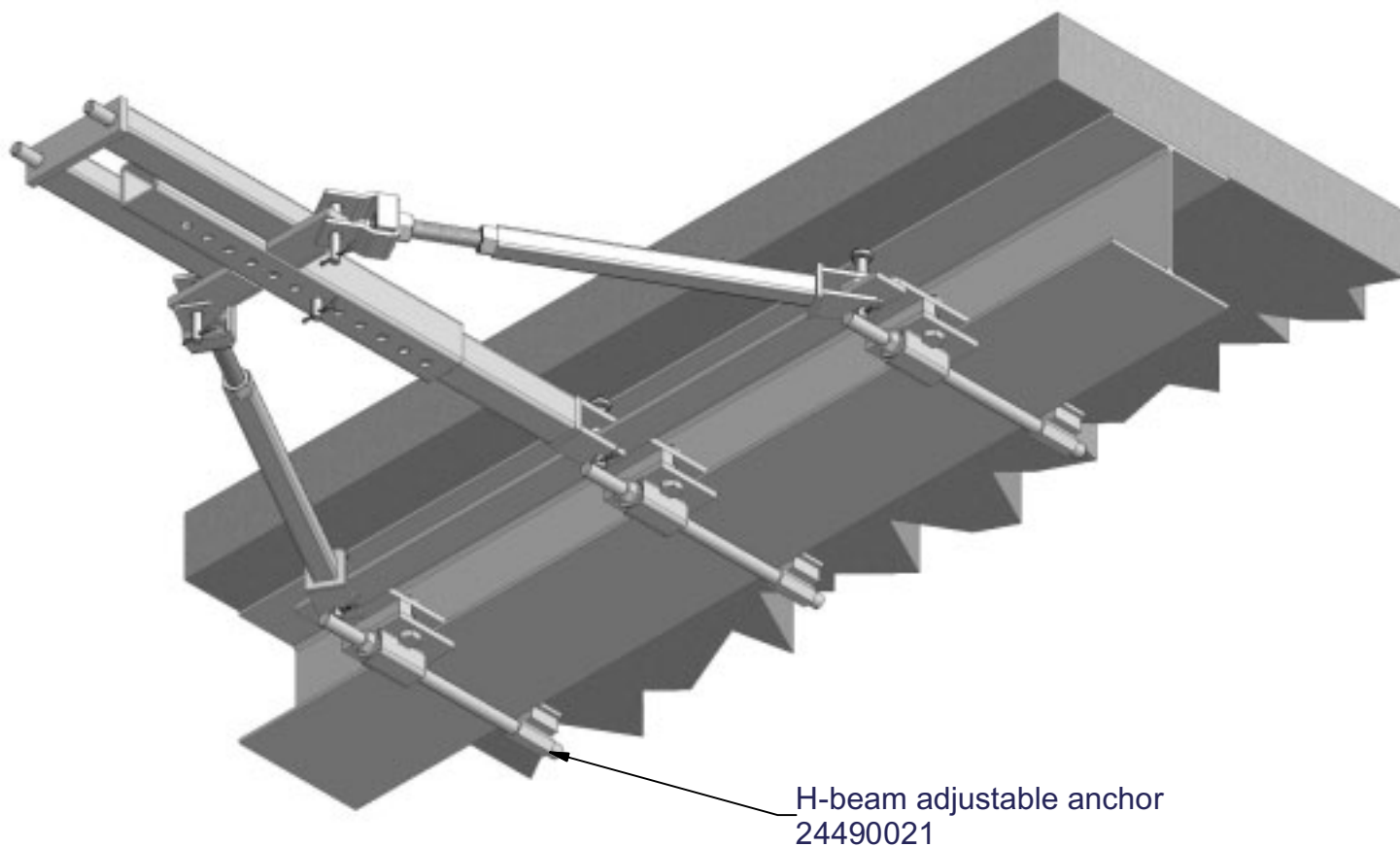
- 1-Install the concrete anchoring box with 3 Quick bolts at each plate.*
- 2-Install the central tube in the holes already drilled on the angle iron.
- 3-Install the turnbuckles in the holes already drilled on the angle iron.
- 4-Make sure that all the pins are in place.
- 5-Lock the pins with cotter pins.
- 6-Lock the anchor in putting the turnbuckles in tension and the central tube in compression.

*-You do not have to use the inner Quick bolt on each plate.



Adjustable anchor for H-beam

WARNING: The strength of the H-beam must be verified by an engineer



Installation:

- 1-Install the wall tie and the central tube.
- 2-Install the adjustable anchors for the turnbuckles using page IV-4.
- 3-Level the mast using the turnbuckles. (adjustment TYPE #2 & #3)
- 4-Install the adjustable anchor for the central tube. (adjustment TYPE #1)
- 5-Make sure that all the pins are in place and are secured by cotter pins.
- 6-Lock the anchor in putting the turnbuckles in tension and the central tube in compression.

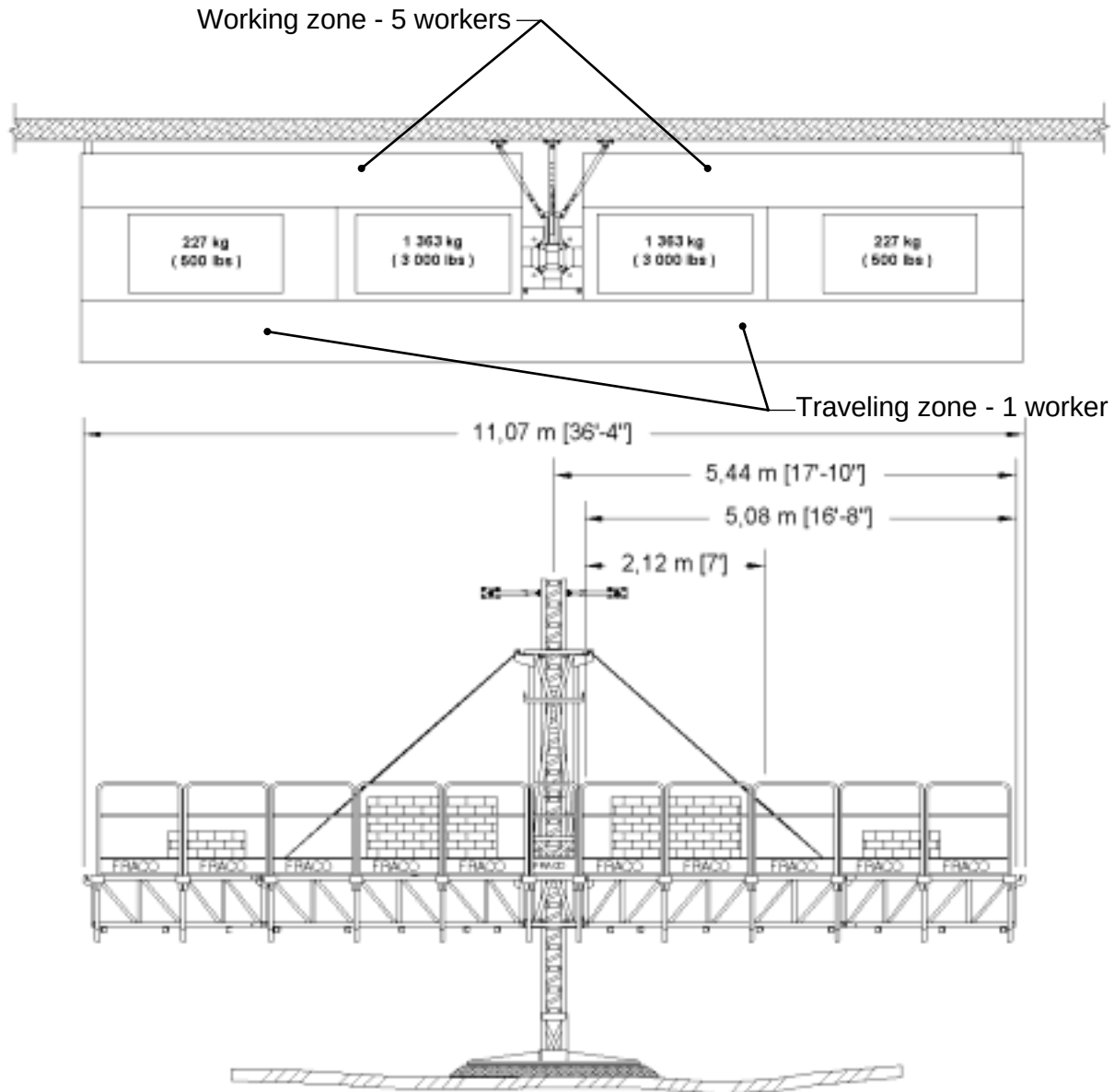


Part V

Operating the platform

Standard weight distribution

Single mast configuration



Total permissible load is 3 636 kg (8 000 lbs) including workers

The load must be uniformly distributed on the platform.

The loading zone is located within 2 m (7') on both sides of the elevating unit.

IMPORTANT

Never place any load on the work zone or the traveling zone

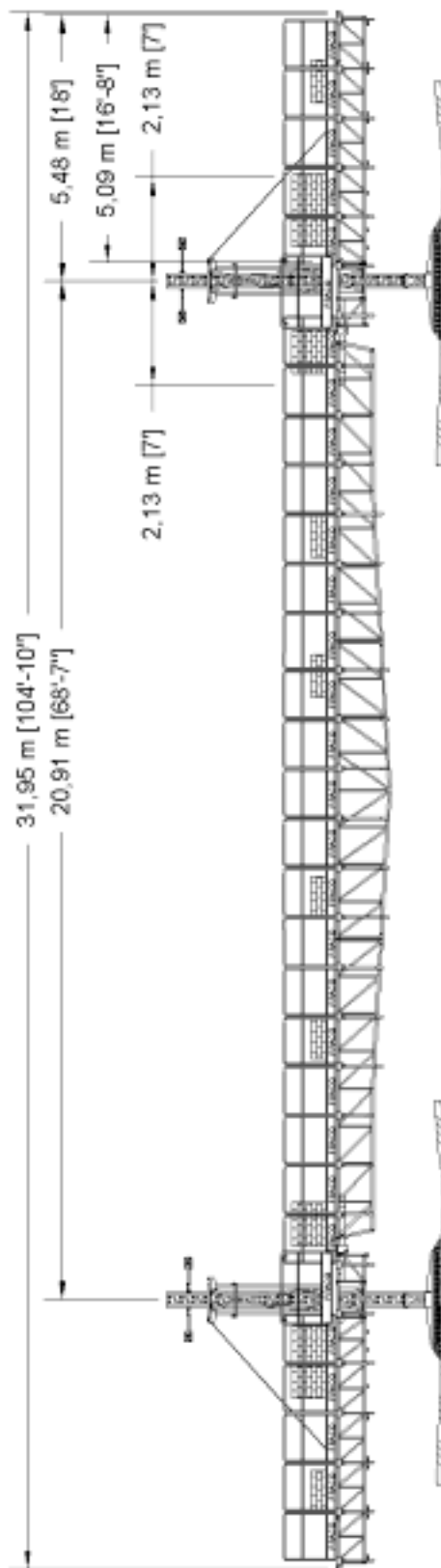
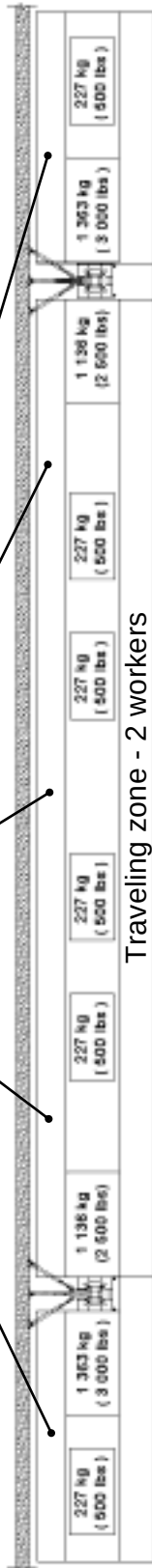
Standard weight distribution

Double mast configuration

IMPORTANT

Never place any load on the work zone or the traveling zone

Working zone - 5 workers



Total permissible load is 7 273 kg (16 000 lbs) including workers.

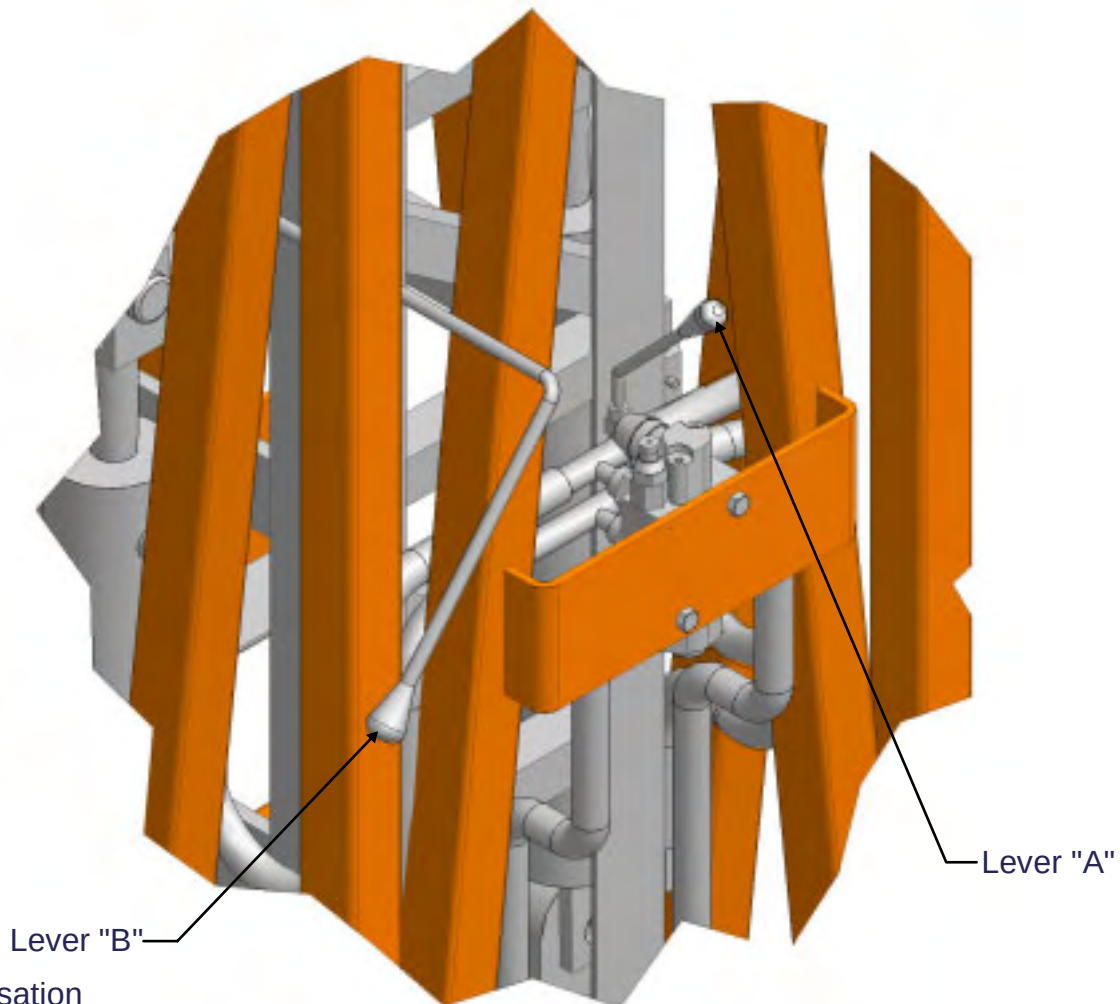
The load must be uniformly distributed on the platform.

The loading zone is located with in 2 m (7') on both sides of the elevating unit.

How to raise the platform

Precautions to take before making any vertical movement with the platform

- 1-Tie yourself to an anchoring point or to the elevating unit and remove the planks that might interfere with the anchors.
- 2-Check to make sure that the platform trajectory is clear of all obstacles.
- 3-Do not use the platform if the wind exceeds 50 km/h (30mph).



Utilisation

- 1-Push on lever "A" until the claws hook onto the next mast cross bars.
- 2-Pull on lever "A" until the safety assembly pass the next mast cross bars.
- 3-Push on lever "A" until the safety assembly is on the mast cross bars and release the hydraulic cylinder pressure.
- 4-Repeat steps 1 to 3 until you have reached the desired height.

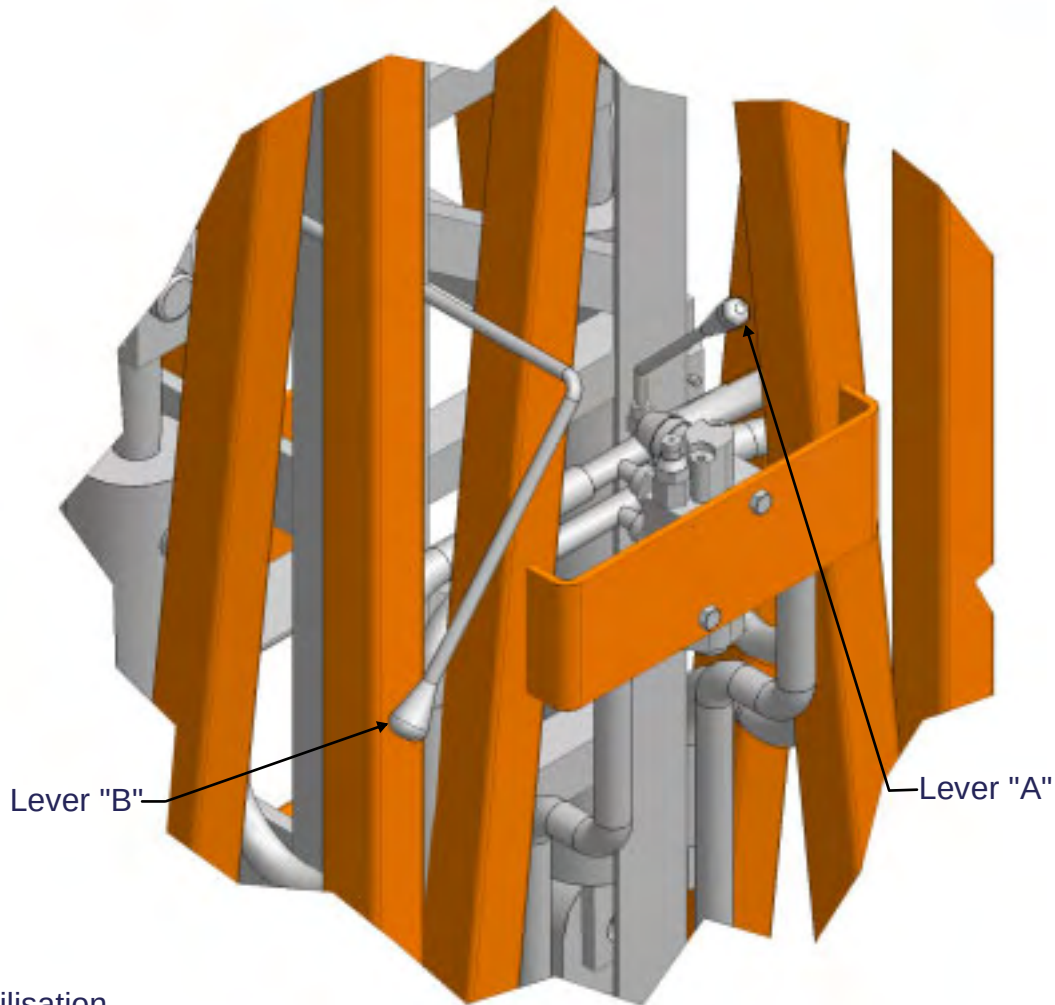
IMPORTANT

**At the end of the raising operation make sure that the safety assembly rests on a mast cross bar.
The height of the platform (floor of platform) must never exceed the last anchor.**

How to lower the platform

Precautions to take before making any vertical movement with the platform

- 1-Tie yourself to an anchoring point or to the elevating unit and remove the planks that might interfere with the anchors.
- 2-Check to make sure that the platform trajectory is clear of all obstacles.
- 3-Do not use the platform if the wind exceeds 50 km/h (30mph).



Utilisation

- 1-Push lever "A" to release the claws from the mast.
- 2-Lower lever "B" to open the claw and hold it.
- 3-Pull lever "A" until the claws clear the bars they were on.
- 4-Let go of lever "B".
- 5-Pull lever "A" until the claws hook up to the other bars and release the safety assembly.
- 6-Press on the pedal to release the safety assembly.
- 7-Push lever "A" to lower the platform.
- 8-Release the pedal to engage the safety assembly.
- 9-Keep pushing lever "A" until the safety assembly stops on a mast cross bar.
- 10-Repeat steps 1 to 9 until you reach the desired height.

At the end of the lowering operation make sure that the safety assembly rests on a mast cross bar

Dismantling the mast, anchors and platform

Warning :

Do not dismantle the mast by sections longer than 12m (40') when using a forklift, crane or a boom truck and 3 m (10') sections when using the self-erecting system.

Steps :

- 1- Unload the platform. When dismantling the platform, the weight must be minimized to 275 kg (600 lbs) 2 men and tools.
- 2- If there are anchors, remove them by 12m (40') mast section maximum.
- 3- Lower the platform until it is below the junction of the last section to be dismantled AND UNDER THE HIGHEST ANCHOR REMAINING.
- 4- Attach the top of the mast section to be dismantled to a forklift, boom truck or crane BEFORE taking off the 4 tower bolts.
- 5- Remove the mast sections measuring no longer than 12 m (40') maximum.

The platform must never be above the last remaining anchor unless you are dismantling anchors or mast sections

- 6- Repeat steps 2 to 5 until the platform reaches the lowest anchor.

*****Always leave the last anchor in place (maximum 6 m (20') above the ground)*****

On the ground:

- 7- Take off the guardrails, wood decking, side brackets, plank ties, planks and outriggers. Then, remove the extensions and bridge from the elevating unit.
- 8- Take off the last remaining anchor, the last mast section and the elevating unit.

IMPORTANT:

These instructions concern the dismantling of a regular FRACO FRSM-6000 platform using a crane, boom truck or forklift. If you still have any questions, please contact your FRACO representative.

Moving the platform

Steps :

- 1- To dismantle the mast sections, follow the steps 1 to 6 on page V-5 Dismantling the mast, anchors and platforms

On the ground

Single mast configuration

- 2- Once the platform is on the ground, remove the last anchor
- 3- Strap the top of the last mast section and move the platform.
- 4- Reinstall the platform base by following the instructions on pages II-1 to II-4.

Double mast configuration

- 5- Once the platform is on the ground remove all guardrail and flooring on the extensions and the 3 flooring boards at the center of the bridge.
- 6- Remove the extensions and the bridge.
- 7- Remove the remaining anchors and move the tower guards to the new location by following the instructions on page II-1 to II-4.
- 8- Reinstall the bridge, extensions, flooring and guardrails.

Important :

These instructions concern the moving of a platform on the ground. Moving the platform when it is not on the ground is a special operation that requires the approval of FRACO or other competent personnel. If you still have any questions, please contact your FRACO representative.

Maintenance

The frequency and the importance of the maintenance depend on the national codes, the builder's specifications, the operating conditions and frequency of use. Normally, it is not necessary to dismantle parts for regular maintenance, except if there are doubts about reliability or safety. Removing hoods, opening inspection holes or lowering the platform to its transport position are not considered as dismantling operations.

Daily

Daily inspection sheet

- ✓ Lock the motor support with a padlock to prevent any unauthorized intrusion;
- ✓ Verify the level of the mast with a 1 m (3') level (both directions);
- ✓ Check the level in the engine gas tank, having a capacity of 6 liters (1,5 gallon);
- ✓ Clean all deposits of cement or dry mortar that could hinder the proper operation of the platform.

Weekly

- ✓ Check the engine oil level;
- ✓ Check the hydraulic pipes for leaks;
- ✓ Check for any metal distortions on parts such as extensions, mast sections, base, hooks, etc. which could have been damaged by improper handling.
- ✓ Check the condition of the different springs

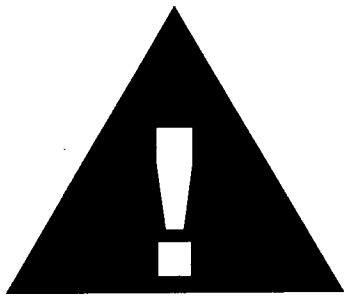
Monthly

Preventive maintenance sheet

- ✓ Verify hydraulic oil level (SAE 32 or HVI 36)

Annual

- ✓ General painting
or
- ✓ Retouch places exposed to rust.



ATTENTION

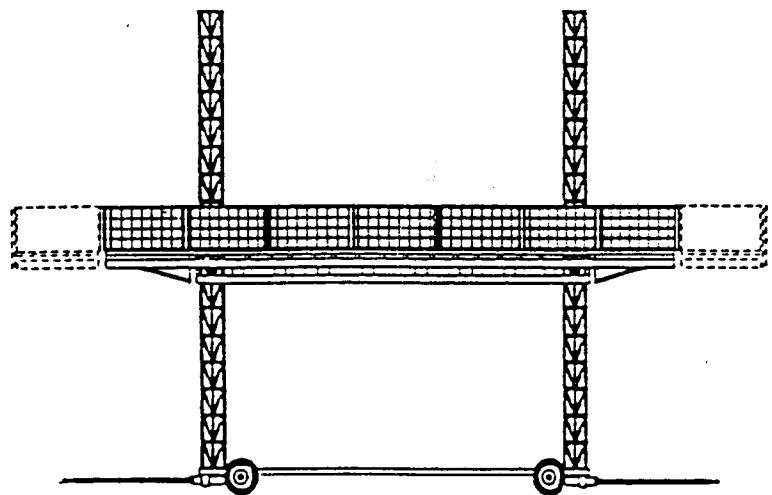
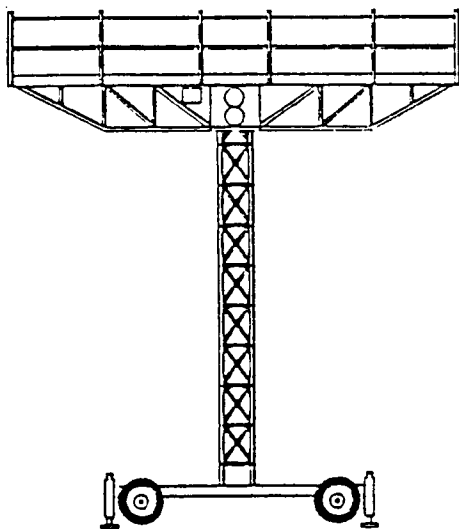
MANUAL OF RESPONSIBILITIES

for

**Dealers, Owners, Users, Operators,
Lessors and Lessees**

of

**ANSI/SIA A92.9-1993
Mast-Climbing Work Platforms**



WARNING

**FAILURE TO COMPLY with your REQUIRED
RESPONSIBILITIES in the use and operation of the Aerial
Platform could result in DEATH OR SERIOUS INJURY.**

IMPORTANT

You are required by **ANSI/SIA A92.9-1993** to read and understand YOUR **RESPONSIBILITIES** before you use or operate this Aerial Platform.

This Manual and the manufacturer's operation and safety manual are considered integral parts of the Aerial Platform and are **VITAL TO COMMUNICATE NECESSARY SAFETY INFORMATION** to users and operators. They **MUST BE KEPT ON THE AERIAL PLATFORM** in the storage compartment.

The operation of any aerial platform is subject to certain **HAZARDS** that can be protected against only by the exercise of **INTELLIGENCE, CARE AND COMMON SENSE**. It is essential to have **COMPETENT, CAREFUL PERSONNEL, TRAINED** in the **INTENDED USE, SAFE OPERATION, MAINTENANCE AND SERVICE** of this type of equipment.

The **USER AND OPERATOR MUST MAKE DECISIONS** on the maintenance, use and operation of the Aerial Platform with due consideration for the fact that the **SAFETY OF THE OPERATOR AND OTHER PERSONNEL** is dependent on those decisions. **FAILURE TO COMPLY** with your **REQUIRED RESPONSIBILITIES** in the use and operation of the Aerial Platform could result in **DEATH OR SERIOUS INJURY**.

Refer to the manufacturer's operation and safety manual for the **INTENDED USE** of the aerial platform and for further **INFORMATION ON SAFE USE AND OPERATION**.

The **ANSI/SIA A92.9-1993** standard for **Mast-Climbing Work Platforms** has an effective date of January 13, 1994. This Manual incorporates sections from that standard as follows:

Definitions	Section	3	Page	1
Responsibilities of Dealers	Section	5	Page	2
Responsibilities of Owners	Section	6	Page	2
Responsibilities of Users	Section	7	Page	4
Responsibilities of Operators	Section	8	Page	7
Responsibilities of Lessors	Section	9	Page	8
Responsibilities of Lessees	Section	10	Page	9
Examples of A92.9 Aerial Platforms	Figure	1	Page	9
Minimum Safe Approach Distance	Figure	2	Page	10

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3. Definitions

attachment: The provision for lateral support consisting of a tie assembly and connection points.

authorized personnel (authorized person): Personnel approved or assigned to perform a specific type of duty or duties at a specific location or locations at a work site.

base: The relevant contact points of the Mast Climbing Work Platform that forms the support.

chassis: The part of the Mast Climbing Work Platform which provides mobility and support for the mast and elevating assembly.

configuration: All positions in which a Mast Climbing Work Platform or any part thereof can be placed within its intended operating limits.

control descent device: A means to limit the descent speed of the elevating assembly.

dealer: A person or entity who buys from a manufacturer or distributor and who generally sells, rents, erects, and services Mast Climbing Work Platforms.

delivery: Transfer of care, control and custody of the Mast Climbing Work Platform from one person or entity to another person or entity.

elevating assembly: The platform, drive mechanisms, and all other components that travel vertically on the mast.

exposed side: A side of the platform that is a greater distance from a building wall or structure than that allowed by Local, State and Federal codes and ordinances for guardrail requirements.

equivalent entity: An organization, agency, or individual who, by possession of an appropriate technical degree, certificate, professional standing, or skill, and who, by knowledge, training, and experience, has demonstrated the ability to deal with the problems relating to the subject matter, the work or the project.

guardrail system: A vertical barrier intended to protect personnel from falling to lower levels.

hazardous location: Any location that contains, or has the potential to contain, an explosive or flammable atmosphere as defined in ANSI/NFPA 505 Powered Industrial Trucks.

instability: A condition in which the sum of the moments which tend to overturn the Mast Climbing Work Platform is equal to or exceeds the sum of the moments tending to resist overturning.

interlock: A control or mechanism that, under specified conditions, automatically allows or prevents the operation of another control or mechanism.

lessee: A lessee is a person(s) or entity to whom a Mast Climbing Work Platform is provided by lease, rental, loan, or other arrangement. A lessee may also be a user or operator.

lessor: A lessor is a person(s) or entity who leases, rents, loans, or otherwise provides a Mast Climbing Work Platform to another party for the beneficial use of that party (the user). A lessor may also be a dealer, owner, lessee, user or operator.

manufacturer: A person or entity who makes, builds or produces a Mast Climbing Work Platform.

mast climbing work platform: A powered device consisting of an elevating assembly, base or chassis and mast, that when erected is capable of supporting personnel, material, equipment, tools, and is capable of traveling vertically in infinitely adjustable increments to reach the desired work level.

mast: A vertical structure that supports and guides the elevating assembly.

modification, modified: To make a change(s) to a Mast Climbing Work Platform which affects the operation, stability, safety factors, or rated load of the Mast Climbing Work Platform in any way.

operator: A qualified person who controls the movement of a Mast Climbing Work Platform.

outriggers: Devices that increase the stability of the Mast Climbing Work Platform and that are capable of lifting and leveling the Mast Climbing Work Platform.

owner: A person or entity who has proof of purchase or legal possession of a Mast Climbing Work Platform.

passive brakes: A braking system which performs automatically without requiring any specific operator action to function.

platform: The portion of a Mast Climbing Work Platform intended to be occupied by personnel with their necessary tools and materials.

platform brakes: A braking system which stops and holds the platform elevating assembly at the rated work load.

platform extension: A structure intended to expand the horizontal width or length of the platform.

platform height: The vertical distance measured from the floor of the platform to the surface upon which the Mast Climbing Work Platform is being supported.

qualified person: A person who by reason of knowledge, experience or training, is familiar with the operation to be performed and the hazards involved.

rack & pinion drive: A gearing arrangement whereby a cylindrical gear (pinion) engages a linear gear (rack).

rated work load: The designed carrying capacity of the Mast Climbing Work Platform as specified by the manufacturer.

shall: The word shall is to be understood as mandatory.

stability: A condition in which the sum of the moments which tend to overturn the Mast Climbing Work Platform is less than the sum of the moments tending to resist overturning.

stabilizers: Devices that increase the stability of the Mast Climbing Work Platform, and are not capable of lifting and leveling the Mast Climbing Work Platform.

tie assembly: A device used between the mast and the building or structure to enhance stability.

upper & lower limit devices: Means to limit the maximum and minimum platform height, usually by mechanical or electrical means, or both.

user: A person(s) or entity that utilizes or puts into

operation a Mast Climbing Work Platform.

NOTE: Operating and maintenance manuals covered in Section 4 of ANSI/SIA A92.9, and referred to in this document, should be obtained from the manufacturer of the Mast Climbing Work platform.

5. Responsibilities of Dealers

5.1 Basic principles. Sound principles of safety, training, inspection, erection, maintenance, applications, and operation consistent with all data available regarding the parameters of intended use and expected environment shall be applied in the training of operators, in maintenance, application, erection and operation of the Mast Climbing Work Platform with due consideration of the knowledge that the unit will be carrying personnel.

5.2 Manuals. Dealers shall keep and maintain copy(ies) of the operating and maintenance manual(s) required in Section 4.18 of this Standard. Copy(ies) of operating manual(s) shall be provided upon each rental or lease delivery. Copy(ies) of operating and maintenance manual(s) shall be provided upon each sale delivery. The operating manual(s) shall be stored in the location required by Section 4.19 of this Standard. These manual(s) are considered an integral part of the Mast Climbing Work Platform and are vital to communicate necessary safety information to users and operators.

5.3 Pre-delivery preparation. Mast Climbing Work Platforms shall be inspected, serviced, and adjusted to Manufacturer's requirements prior to each delivery by sale, lease, or rental.

5.4 Maintenance safety precautions. Before adjustments and repairs are started on a Mast Climbing Work Platform, the following precautions shall be taken as applicable:

a) All controls in the "Off" position and all operating features secured from inadvertent motion by brakes, blocks, or other means.

b) Platform lowered to the full down position, if possible, or otherwise secured by blocking or cribbing to prevent dropping.

c) Hydraulic oil/pneumatic pressure relieved from all hydraulic/pneumatic circuits before loosening or removing hydraulic/pneumatic components.

d) Safety props or latches installed where applicable as described by the manufacturer.

e) All electrical circuits shall be de-energized by a locking device or by lock out/tag out system to protect against electrical shock during maintenance.

f) Limit access to maintenance work area by unauthorized persons.

5.5 Replacement parts. When parts or components are replaced, they shall be identical or equivalent to original Mast Climbing Work Platform parts or components.

5.6 Training. Whenever a dealer directs or authorizes an individual to operate a Mast Climbing Work Platform, he shall ensure that the individual has been trained under the direction of a qualified person in accordance with the manufacturer's operating and maintenance manual and requirements listed in Section 8 of this Standard before operating the Mast Climbing Work Platform.

5.6.1 Training on delivery. Manufacturer's operating instructions and required training on the proper use and operation of the Mast Climbing Work Platform shall be provided upon each delivery by sale, lease, or rental.

5.7 Operation. When a dealer operates a Mast Climbing Work Platform in sales demonstrations or otherwise for his beneficial use, he and his operating personnel shall assume the Responsibilities of Users as specified in Section 7 and Responsibilities of Operators as specified in Section 8 of this Standard.

5.8 Assistance to owners & users. If a dealer is unable to answer an owner's or user's question relating to rated load, intended use, maintenance, repair, inspection, or operation of the Mast Climbing Work Platform, the dealer shall obtain the proper information from the manufacturer, or equivalent entity should the manufacturer no longer be in business, and provide that information to owner or user.

5.9 Record retention. Dealer(s) shall retain the following records for at least three years:

a) Name and address of the purchaser or lessee of each Mast Climbing Work Platform by serial number and the date of delivery.

b) Records of the person(s) trained upon each delivery of a Mast Climbing Work Platform.

c) Records of the pre-delivery inspection performed prior to each delivery, including the name(s) of the individual(s) responsible for such work.

5.10 Modifications. Modifications or alterations of Mast Climbing Work Platforms shall be made only with prior written permission of the manufacturer, or equivalent entity should the manufacturer no longer be in business.

5.11 Manufacturer's safety bulletins. The dealer shall comply with safety related bulletins as received from the manufacturer.

6. Responsibility of owners

6.1 Basic principles. Sound principles of safety, training, inspection, erection, maintenance, application, and operation consistent with all data available regarding the parameters of intended use and expected environment

shall be applied in the performance of the responsibilities of owners with due consideration of knowledge that the unit will be carrying personnel.

6.2 Manuals. Owners shall keep and maintain copy(ies) of the operating and maintenance manual(s) required in Section 4.18 of this Standard. Copy(ies) of operating manual(s) shall be provided upon each rental or lease delivery. Copy(ies) of operating and maintenance manual(s) shall be provided upon each sale delivery. The operating manual(s) shall be stored in the location required in Section 4.19 of this Standard. These manual(s) are considered an integral part of the Mast Climbing Work Platform and are vital to communicate necessary safety information to users and operators.

6.3 Maintenance. The owner of a Mast Climbing Work Platform shall arrange that the maintenance specified in this Standard is properly performed on a timely basis by a qualified person. The owner shall establish a preventive maintenance program in accordance with the manufacturer's recommendations and based on the environment and severity of use of the Mast Climbing Work Platform. The owner shall arrange that frequent and annual inspections are performed. All malfunctions and problems noted shall be corrected before the Mast Climbing Work Platform is returned to service.

6.4 Frequent inspection. The owner of a Mast Climbing Work Platform shall cause a FREQUENT INSPECTION to be performed on the Mast Climbing Work Platform:

- a) That has been in service for three (3) months.
- b) That has been out of service for a period longer than three (3) months.

The inspection shall be made by a person qualified on the specific make and model of the Mast Climbing Work Platform. The inspection shall include all items specified by the manufacturer for a FREQUENT INSPECTION and shall include but not be limited to the following:

- a) All functions and their controls for speed(s), smoothness, and limits of motion.
- b) Emergency lowering means.
- c) All chain and cable mechanisms for adjustment and worn or damaged parts.
- d) All emergency and safety devices.
- e) Lubrication of all moving parts, as specified by the manufacturer.
- f) Visual inspection of structural components and other critical components such as fasteners, pins, shafts, locking devices, bolts, nuts, and tie assemblies.
- g) Placards, warnings, and control markings.
- h) Items specified by the manufacturer.
- i) Correction of all malfunctions and problems identified and further inspection if necessary, before continuing use.

6.5 Annual inspection. The owner of a Mast Climbing Work Platform shall cause an ANNUAL INSPECTION to be performed on the Mast Climbing Work Platform no later than thirteen (13) months from the

date of the prior annual inspection. The inspection shall be made by a person qualified on the specific make and model of the Mast Climbing Work Platform. The inspection shall include all items specified by the manufacturer for an ANNUAL INSPECTION.

6.6 Maintenance safety precautions. Before adjustments and repairs are started on a Mast Climbing Work Platform, the following precautions shall be taken as applicable:

- a) All controls in the "OFF" position and all operating features secured from inadvertent motion by brakes, blocks, or other means.
- b) Platform lowered to the full down position, if possible, or otherwise secured by blocking or cribbing to prevent dropping.
- c) Hydraulic oil/pneumatic pressure relieved from all hydraulic/pneumatic circuits before loosening or removing hydraulic/pneumatic components.
- d) Safety props or latches installed where applicable as described by the manufacturer.
- e) All electrical circuits shall be de-energized by locking device or by lock-out/tag-out system to protect against electrical shock during maintenance.
- f) Limit access to maintenance work area by unauthorized persons.

6.7 Replacement parts. When parts or components are replaced, they shall be identical or equivalent to original Mast Climbing Work Platform parts or components.

6.8 Maintenance training. The owner shall train his maintenance personnel in inspection and maintenance of the Mast Climbing Work Platform in accordance with Sections 6.3, 6.4, 6.5, 6.6, and 6.7 of this Standard and with the manufacturer's recommendations.

6.9 Operator training. Whenever an owner directs or authorizes an individual to operate a Mast Climbing Work Platform he shall ensure that the individual has been trained in accordance with the manufacturer's operating manual, and requirements listed in Section 8 of this Standard before operating the Mast Climbing Work Platform.

6.9.1 Training on delivery. Manufacturer's operation instructions and required training on the proper use and operation of the Mast Climbing Work Platform shall be provided upon each delivery by sale, lease, or rental.

6.10 Operation. When an owner operates a Mast Climbing Work Platform, he shall have the responsibilities of users as specified in Section 7 of this Standard and his operating personnel shall have responsibilities of operators as specified in Section 8 of this Standard.

6.11 Assistance to users and operators. If an owner is unable to answer a user's or operator's questions relating to rated load, intended use, maintenance, repair, inspection, or operation of the Mast Climbing Work Platform, the owner shall obtain the proper information from the dealer or manufacturer, or equivalent entity should the dealer or manufacturer not be available or able

to provide said answer, and provide that information to the user or operator.

6.12 Record retention. The owner shall retain the following records for at least three years.

a) Name and addresses of the subsequent purchaser of each Mast Climbing Work Platform by serial number and date of delivery.

b) Records of the person(s) trained upon each delivery of a Mast Climbing Work Platform.

c) Written records of the FREQUENT and ANNUAL INSPECTIONS shall be kept by the owner when he performs the inspection. The record shall include deficiencies found, corrective action and identification of the person(s) performing the inspection and repairs.

d) Records of the pre-delivery inspection performed prior to each delivery.

6.13 Modifications. The owner shall not modify or concur in modifications or alteration to the Mast Climbing Work Platform without the modification being approved and certified in writing by the manufacturer, or equivalent entity should the manufacturer no longer be in business.

6.14 Manufacturer's safety bulletins. The owner shall comply with safety related bulletins as received from the manufacturer or dealer.

7. Responsibilities of users

7.1 Basic principles. The information in this Standard must be supplemented by good job management, safety control, and the application of sound principles of safety, training, inspection, erection, maintenance, application and operation consistent with all data available regarding the parameters of intended use and expected environment. Since the user has direct control over the application and operation of Mast Climbing Work Platforms, conformance with good safety practices in this area is the responsibility of the user and his operating personnel including the operator. Decisions on the use and operation of the Mast Climbing Work Platform must always be made with due consideration for the fact that the machine will be carrying personnel whose safety is dependent on those decisions.

7.2 Erection principles.

7.2.1 Support structure integrity analysis. The building or structure and attachments shall be assessed by a qualified person to insure that it can withstand the loading imposed upon it by the Mast Climbing Work Platform.

NOTE - the above requirement is waived when the machine is designed to be Free Standing.

7.2.2 Base/chassis support. Each Mast Climbing Work Platform shall be supported by a firm foundation of such strength and dimensions as will adequately distribute the transmitted load so as not to exceed the safe load bearing capacity of the surface upon which such platforms are erected.

7.2.3 Attachments. The Mast Climbing Work Platform shall be properly tied to the building or support structure unless it is designed to be free standing. Tie Assembly(ies) shall conform to, or be equal to, the manufacturer's specifications and shall remain in place until the mast(s) is(are) dismantled.

7.2.4 Electrical supply circuit. Appropriate lock-out/tag-out system shall be implemented for the supply circuit (power source circuit).

7.2.5 Overhead restrictions. Prior to erection, travel area of the Mast Climbing Work Platform shall be checked for overhead obstructions and minimum safe approach distance to energized overhead power lines. (See Figure 2, page 10, for examples of safe operating procedures.)

7.3 Manuals. Users shall keep and maintain copy(ies) of the operating manual(s) required in section 4.18 of this Standard. The operating manual(s) shall be stored in the location required in section 4.19 of this Standard. These manuals are considered an integral part of the Mast Climbing Work Platform and are vital to communication of necessary safety information to users and operators.

7.4 Inspection and maintenance. Users shall inspect and maintain the Mast Climbing Work Platform as required to ensure proper operation. The frequency of inspection and maintenance shall be determined by manufacturer's recommendation and be compatible with operating conditions and the severity of the operating environment. Mast Climbing Work Platforms that are not in proper operating condition shall be immediately removed from service until repaired. Repairs shall be made by a qualified person and the repairs shall be in conformance with the manufacturer's recommendations, or the equivalent entity's recommendations should the manufacturer no longer be in business.

7.4.1 Frequent inspection. An inspection as outlined in section 6.4 of this Standard shall be conducted.

7.4.2 Annual inspection. An inspection as outlined in section 6.5 of this Standard shall be conducted.

7.4.3 Pre-start inspection. Before use each day or at the beginning of each shift, the Mast Climbing Work Platform shall be given a visual inspection and functional test including but not limited to the following:

- a) Operating and emergency controls, including but not limited to brakes, and limit devices.
- b) Safety devices.
- c) Air, hydraulic and fuel system leaks.
- d) Cables and wiring harness.
- e) Loose or missing parts.
- f) Tires and wheels.
- g) Placards, warnings, and control markings.
- h) Outriggers, stabilizers, and other structures.
- i) Guardrail system.
- j) Mast guards.
- k) Mast sections.
- l) Attachments.
- m) Platform extensions.

- n) Items specified by the manufacturer.
- o) Correction of all malfunctions and problems identified and further inspection if necessary, before continued use.

7.4.4 Maintenance safety precautions. Before adjustments and repairs are started on a Mast Climbing Work Platform, the following precautions shall be taken as applicable:

- a) All controls in the "OFF" position and all operating features secured from inadvertent motion by brakes, blocks, or other means.
- b) Powerplant stopped and starting means rendered inoperative.
- c) Platform lowered to the full down position, if possible, or otherwise secured by blocking or cribbing to prevent dropping.
- d) Hydraulic oil/pneumatic pressure relieved from all hydraulic/pneumatic circuits before loosening or removing hydraulic/ pneumatic components.
- e) Safety props or latches installed where applicable as described by the manufacturer.
- f) Precautions specified by the manufacturer.
- g) All electrical circuits shall be de-energized by a locking device or by a lock-out/tag-out system to protect against electrical shock.
- h) Limit access to maintenance work area by unauthorized persons.

7.5 Replacement parts. When parts or components are replaced, they shall be identical or equivalent to original Mast Climbing Work Platform parts or components.

7.6 Maintenance training. The user shall train his maintenance personnel in inspection, erection and maintenance of the Mast Climbing Work Platform in accordance with sections 7.2, 7.3, 7.4, and 7.5 of this Standard and with the manufacturer's recommendations.

7.7 Operator training. Whenever a user directs or authorizes an individual to operate a Mast Climbing Work Platform, he shall ensure that the individual has been trained in accordance with the manufacturer's operating and maintenance manual, and the user's work instructions and requirements listed in section 8 of this Standard before operating the Mast Climbing Work Platform.

7.7.1 Model training. The user shall be responsible for the operator being trained on the model of the Mast Climbing Work Platform that he will be operating. Such training shall be in an area free of obstructions, under the direction of a qualified person for a time sufficient to determine that the trainee displays proficiency in knowledge and actual operation of the Mast Climbing Work Platform. Only properly trained and authorized personnel shall be permitted to operate the Mast Climbing Work Platform.

7.7.2 Trainees training record. A record of the trainee's Mast Climbing Work Platform instruction shall be maintained by the user for at least three years.

7.8 Before operation. Before authorizing an

operator to operate a Mast Climbing Work Platform, the user shall ensure that the operator has:

- a) Been instructed by a qualified person in the intended purpose and function of each control.
- b) Has read and understood the manufacturer's operating instructions and user's safety rules, or been trained by a qualified person on the contents of the manufacturer's operating instructions and user's safety rules.
- c) Understood by reading or by having a qualified person explain all decals, warnings, and instructions displayed on the Mast Climbing Work Platform.
- d) Determined that the purpose for which the Mast Climbing Work Platform is to be used is within the scope of the intended applications defined by the manufacturer.

7.9 Work place inspection. Before the Mast Climbing Work Platform is used and during use, the user shall check the area in which the Mast Climbing Work Platform is to be used for possible hazards such as but not limited to:

- a) Drop-offs or holes.
- b) Bumps and floor obstructions.
- c) Debris.
- d) Overhead obstructions and high voltage conductors.
- e) Hazardous locations.
- f) Inadequate surface and support to withstand all load forces imposed by the Mast Climbing Work Platform in all operating configurations.
- g) Wind and weather conditions.
- h) Attachments.
- i) Other possible unsafe conditions.
- j) Presence of unauthorized persons.
- k) Vehicular traffic.

7.10 During operation. The Mast Climbing Work Platform shall be used in accordance with this Standard and manufacturer's instructions. The user shall direct the operator to ensure the following before each elevation of the platform:

- a) That the Mast Climbing Work Platform is operated on a surface within the limits specified by the manufacturer.
- b) That the outriggers, stabilizers, extendable axles, or other stabilizing methods, are used as required by the manufacturer.
- c) That the Mast Climbing Work Platform shall be properly tied to the building or other structures being worked at unless the machine is designed to be free standing.
- d) That guardrails and mast guards are installed and access gates or openings are closed per manufacturer's instructions.
- e) That the load and its distribution on the platform and any platform extension are in accordance with the manufacturer's rated work load for that specific configuration.
- f) That there is adequate clearance from overhead obstructions.
- g) That the minimum safe approach distances

(M.S.A.D.) to energized power lines and parts, as listed in Table One are maintained. (See Figure 2 on page 10 for examples of safe operating procedures.)

h) That the precautions defined in sections 8.3, 8.4, 8.7, 8.8, 8.9, and 8.10 of this Standard and manufacturer's instructions are followed during operation of the Mast Climbing Work Platform.

i) That fall protection devices are used by all personnel on the platform if any section of the guardrail system has been removed from an exposed side of the platform.

7.11 Determination of hazardous locations. It shall be the responsibility of the user to determine the hazard classification of any particular atmosphere or location according to ANSI/NFPA 505-1987.

7.11.1 Hazardous location operating requirements. Mast Climbing Work Platforms operated in hazardous locations shall be approved and of the type required by ANSI/NFPA 505-1987.

7.12 Warnings and instruction. The user shall direct his operating personnel and supervise the work to ensure operation in compliance with the following:

7.12.1 Personnel footing. Personnel shall maintain a firm footing on the platform floor while working thereon. Use of ladders on the Mast Climbing Work Platform for achieving additional height or reach shall be prohibited. Any other device to achieve additional height shall be used only with written approval of the manufacturer.

7.12.2 Other moving equipment. When other moving equipment or vehicles are present, special precautions shall be taken to comply with local ordinances or safety standards established for the work place. Warnings such as, but not limited to flags, roped off areas, flashing lights, and barricades shall be used.

7.12.3 Reporting problems or malfunctions. The operator shall immediately report to his supervisor any problems or malfunctions which become evident during operation. Any problems or malfunctions that affect the safety or operations shall be repaired prior to continued use of the Mast Climbing Work Platform.

7.12.4 Altering safety devices. Altering or disabling of interlocks, limit switches, or other safety devices shall be prohibited.

7.12.5 Entanglement. Care shall be taken to prevent rope, electric cords, hoses, etc., from becoming entangled in the Mast Climbing Work Platform.

7.12.6 Capacity limitation. Mast Climbing Work Platform rated work load shall not be exceeded when loads are transferred to the platform at any height.

7.12.7 Work area. The operator shall ensure that the area surrounding the Mast Climbing Work Platform is clear of personnel and equipment before lowering the platform.

7.12.8 Misuse. The Mast Climbing Work Platform shall not be used as a crane, or personnel/material hoist.

7.12.9 Operating areas. The Mast Climbing Work Platform shall not be operated from a position on trucks, trailers, railway cars, floating vessels, scaffolds, or similar

equipment unless the application is approved in writing by the manufacturer.

7.12.10 Travel conditions. Under all travel conditions, the operator shall limit travel speed according to conditions of ground surface, congestion, visibility, slope, location of personnel, and other factors causing hazards of collision or injury to personnel.

7.12.11 Unauthorized use. When applicable, means shall be used to protect against use by unauthorized person(s).

7.13 Operation of mast climbing work platform. If a user is also the operator of a Mast Climbing Work Platform, he shall have the responsibilities of operators specified in section 8 of this Standard as well as responsibilities of users as specified in section 7 of this Standard.

7.14 Assistance to operator. If a user is unable to answer any operator's questions relating to rated work load, intended use, maintenance, erection conditions of the Mast Climbing Work Platform or safety of operation of the Mast Climbing Work Platform, the user shall obtain the proper information from the dealer, owner, manufacturer, or equivalent entity should the manufacturer no longer be in business, and provide that information to the operator before use of the Mast Climbing Work Platform in the application of concern.

7.15 Shutdown of mast climbing work platform. The user shall authorize and direct his operating personnel to cease operation of the Mast Climbing Work Platform in case of any suspected malfunctions of the Mast Climbing Work Platform, or any hazard or potentially unsafe condition that may be encountered, and to request further information as to safe operation from the owner, dealer, or manufacturer before further operation of the Mast Climbing Work Platform.

7.16 Record retention. The user shall retain the following records for at least three years:

a) Records of the operator(s) trained on each model of a Mast Climbing Work Platform.

b) Written records of the frequent and annual inspections shall be kept by the user when he performs the inspections. The records shall include the date of inspection, any deficiencies found, the corrective action recommended and identification of the person(s) performing the inspection.

c) Written records of all repairs accomplished on the Mast Climbing Platform shall include the date of any such repair, a description of the work accomplished and identification of the person(s) performing the repair.

7.17 Modifications. A user shall not modify or concur in modification of a Mast Climbing Work Platform without the specific written approval of the manufacturer, or equivalent entity should the manufacturer no longer be in business, of the Mast Climbing Work Platform.

7.18 Manufacturer's safety bulletins. The user shall comply with safety related bulletins as received from the manufacturer, dealer, or owner.

8. Responsibilities of operators

8.1 Basic principles. The information in this Standard must be supplemented by good judgement, safety control, and caution in evaluating each situation. Since the operator is in direct control of the Mast Climbing Work Platform, conformance with good safety practices in this area is the responsibility of the operator. The operator must make decisions on the use and operation of the Mast Climbing Work Platform with due consideration for the fact that his own safety as well as the safety of other personnel on and around the platform is dependent on these decisions.

8.2 Manuals. The operator shall be aware that the operating and safety manuals, including the manual which defines the responsibilities of dealers, owners, lessors, lessees, users and operators are stored on the Mast Climbing Work Platform and the location where they are stored. The operator shall be familiar with the manuals stored on the Mast Climbing Work Platform and consult them when questions arise with respect to the Mast Climbing Work Platform.

8.3 Pre-start inspection. Before use each day or at the beginning of each shift, the Mast Climbing Work Platform shall be given a visual inspection and functional test including but not limited to the following:

- a) Operating and emergency controls, including but not limited to brakes, and limit devices.
- b) Safety devices.
- c) Air, hydraulic and fuel system leaks.
- d) Cables and wiring harness.
- e) Loose or missing parts.
- f) Tires and wheels.
- g) Placards, warnings, and control markings.
- h) Outriggers, stabilizers, and other structures.
- i) Guardrail system.
- j) Mast guards.
- k) Mast sections.
- l) Attachments.
- m) Platform extensions.
- n) Items specified by the manufacturer.
- o) Correction of all malfunctions and problems identified and further inspection if necessary, before continued use.

8.4 Problems or malfunctions. Any problems or malfunctions that affect the safety of operations shall be repaired prior to the use of the Mast Climbing Work Platform.

8.5 Training. The operator shall have been trained either on the same model of a Mast Climbing Work Platform or one having operating characteristics and controls consistent with the one to be used during actual work site operation. The operator trainee shall operate the Mast Climbing Work Platform in an area free of obstructions under the direction of the qualified person for a time sufficient to determine that the trainee displays proficiency in knowledge and actual operation of the Mast

Climbing Work Platform. Only properly trained and authorized personnel shall be permitted to operate the Mast Climbing Work Platform.

8.6 Before operation. Before being authorized to operate the Mast Climbing Work Platform, the operator shall have:

- a) Been instructed by a qualified person in the intended purpose and function of each of the controls.
- b) Read and understood the manufacturer's/owner's operating instructions and safety rules, or been trained by a qualified person on the contents of the manufacturer's/owner's operating instructions and safety rules.
- c) Understood by reading or having a qualified person explain all decals, warnings, and instructions displayed on the Mast Climbing Work Platform.

8.7 Work place inspection. Before the Mast Climbing Work Platform is used and during use, the operator shall check the area in which the Mast Climbing Work Platform is to be used for possible hazards such as, but not limited to:

- a) Drop-offs or holes.
- b) Bumps and floor obstructions.
- c) Debris.
- d) Overhead obstructions and high voltage conductors.
- e) Hazardous locations.
- f) Inadequate surface and support to withstand all load forces imposed by the Mast Climbing Work Platform in all operating configurations.
- g) Wind and weather conditions.
- h) Vehicular traffic.
- i) Attachments of building ties.
- j) Other possible unsafe conditions.
- k) Presence of unauthorized persons.

8.8 During operation. The Mast Climbing Work Platform shall be used in accordance with this Standard. The operator shall ensure the following before each elevation of the platform:

- a) That the Mast Climbing Work Platform is operated on a surface within the limits specified by the manufacturer.
- b) That the outriggers, stabilizers, extendable axles, or other stability enhancing means are used as required by the manufacturer.
- c) That guardrails and mast guards are installed and access gates or openings are closed per manufacturer's instructions.
- d) That the load and its distribution on the platform and any platform extensions are in accordance with the specific configuration.
- e) That there is adequate clearance from overhead obstructions.
- f) That the minimum safe approach distances (M.S.A.D.) to energized power lines and parts, as listed in Table One, are maintained. (See Figure 2, page 10, for examples of safe operating procedures.)
- g) That fall protection devices are used by all personnel

on the platform if any section of the guardrail system has been removed from an exposed side of the platform.

8.9 Determination of hazardous locations. It shall be the responsibility of the user to determine the hazard classification of any particular atmosphere or location according to ANSI/NFPA 505-1987.

8.9.1 Hazardous location operating requirements. Mast Climbing Work Platforms operated in hazardous locations shall be approved and of the type required by ANSI/NFPA 505-1987.

8.10 Warnings and instructions. The operator and other personnel in the platform shall comply with the following:

8.10.1 Personnel footing. Personnel shall maintain a firm footing on the platform floor while working therein. Use of ladders on the Mast Climbing Work Platform for achieving additional height or reach shall be prohibited. Any other device to achieve additional height shall be used only with the written approval of the manufacturer.

8.10.2 Other moving equipment. When other moving equipment or vehicles are present, special precautions shall be taken to comply with local ordinances or safety standards established for the work place. Warnings such as, but not limited to, flags, roped off areas, flashing lights, and barricades shall be used.

8.10.3 Reporting problems or malfunctions. The operator shall immediately report to his supervisor any problems or malfunctions which become evident during operation. Any problems or malfunctions that affect the safety of operation shall be repaired prior to continued use of the Mast Climbing Work Platform.

8.10.4 Reporting potentially hazardous locations. The operator shall immediately report to his supervisor any potential hazards which become evident during operation.

8.10.5 Altering safety devices. Altering or disabling of interlocks, limit switches, or other safety devices shall be prohibited.

8.10.6 Entanglement. Care shall be taken to prevent rope, electric cords, hoses, etc. from becoming entangled in the Mast Climbing Work Platform.

8.10.7 Work load limitation. Mast Climbing Work Platform rated work load shall not be exceeded when loads are transferred to the platform at any height.

8.10.8 Work area. The operator shall ensure that the area surrounding the Mast Climbing Work Platform is clear of personnel and equipment before lowering the platform.

8.10.9 Misuse. The Mast Climbing Work Platform shall not be used as a crane, or personnel/material hoist.

8.10.10 Operating areas. The Mast Climbing Work Platform shall not be operated from a position on trucks, trailers, railway cars, floating vessels, scaffolds, or similar equipment unless the application is approved in writing by the manufacturer.

8.10.11 Travel conditions. Under all travel conditions, the operator shall limit travel speed according

to conditions of ground surface, congestion, visibility, slope, location of personnel, and other factors causing hazards of collision or injury to personnel.

8.10.12 Unauthorized use. When applicable, means shall be used to protect against use by unauthorized person(s).

8.10.13 Misuse as a jack. The platform of the Mast Climbing Work Platform shall not be used to jack the wheels off the ground unless the machine is designed for that purpose by the manufacturer.

8.10.14 Snagged platform. If the platform or elevating assembly becomes caught, snagged or is otherwise prevented from normal motion by adjacent structure or other obstacles such that control reversal does not free the platform, all personnel shall be removed from the platform before attempts are made to free the platform.

8.11 Assistance to operator. If an operator encounters any suspected malfunction of the Mast Climbing Work Platform, or any hazard or potentially unsafe condition relating to work load, operator shall cease operation of the Mast Climbing Work Platform and request further information as to safe operation from his management, or the owner, dealer, or manufacturer before further operation of the Mast Climbing Work Platform.

8.12 Modifications. An operator shall not modify or concur in modification of a Mast Climbing Work Platform without the specific written approval of the manufacturer, or equivalent entity should the manufacturer no longer be in business, of the Mast Climbing Work Platform.

9. Responsibilities of lessors

9.1 Basic principles. Sound principles of safety, training, inspection, erection, maintenance, application, and operation consistent with all data available regarding the parameters of intended use and expected environment shall be applied in the performance of responsibilities of lessors with due consideration of the knowledge that the unit shall be carrying personnel.

9.2 Lessor. A lessor is a person(s) or entity who leases, rents, loans, or otherwise provides a Mast Climbing Work Platform to another party for the beneficial use of that party (the user). A lessor may also be a dealer, owner, lessee, user or operator.

9.2.1 Lessor as a dealer. When a lessor uses the Mast Climbing Work Platform as a dealer, he shall have the responsibilities of dealers as specified in section 5 of this Standard.

9.2.2 Lessor as an owner. When a lessor uses the Mast Climbing Work Platform as an owner, he shall have the responsibilities of owners as specified in section 6 of this Standard.

9.2.3 Lessor as a user. When a lessor uses the Mast Climbing Work Platform as a user, he shall have the responsibilities of users as specified in section 7 of this Standard.

9.2.4 Lessor as an operator. When a lessor uses the Mast Climbing Work Platform as an operator, he shall have the responsibilities of operators as specified in section 8 of this Standard.

10. Responsibilities of lessee

10.1 Basic principles. Sound principles of safety, training, inspection, erection, maintenance, application, and operation consistent with all data available regarding the parameters of intended use and expected environment shall be applied in the performance of responsibilities of lessee with due consideration of the knowledge that the unit shall be carrying personnel.

10.2 Lessee. A lessee is a person(s) or entity to whom a Mast Climbing Work Platform is provided by lease, rental, loan, or other arrangement. A lessee may also be a user or operator.

10.2.1 Lessee as a dealer. When a lessee uses the Mast Climbing Work Platform as a dealer, he shall have the responsibilities of dealers as specified in section 5 of this Standard.

10.2.2 Lessee as an owner. When a lessee uses the Mast Climbing Work Platform as a owner, he shall have the responsibilities of owners as specified in section 6 of this Standard.

10.2.3 Lessee as a user. When a lessee uses the Mast Climbing Work Platform as a user, he shall have the responsibilities of users as specified in section 7 of this Standard.

10.2.4 Lessee as an operator. When a lessee uses the Mast Climbing Work Platform as an operator, he shall have the responsibilities of operators as specified in section 8 of this Standard.

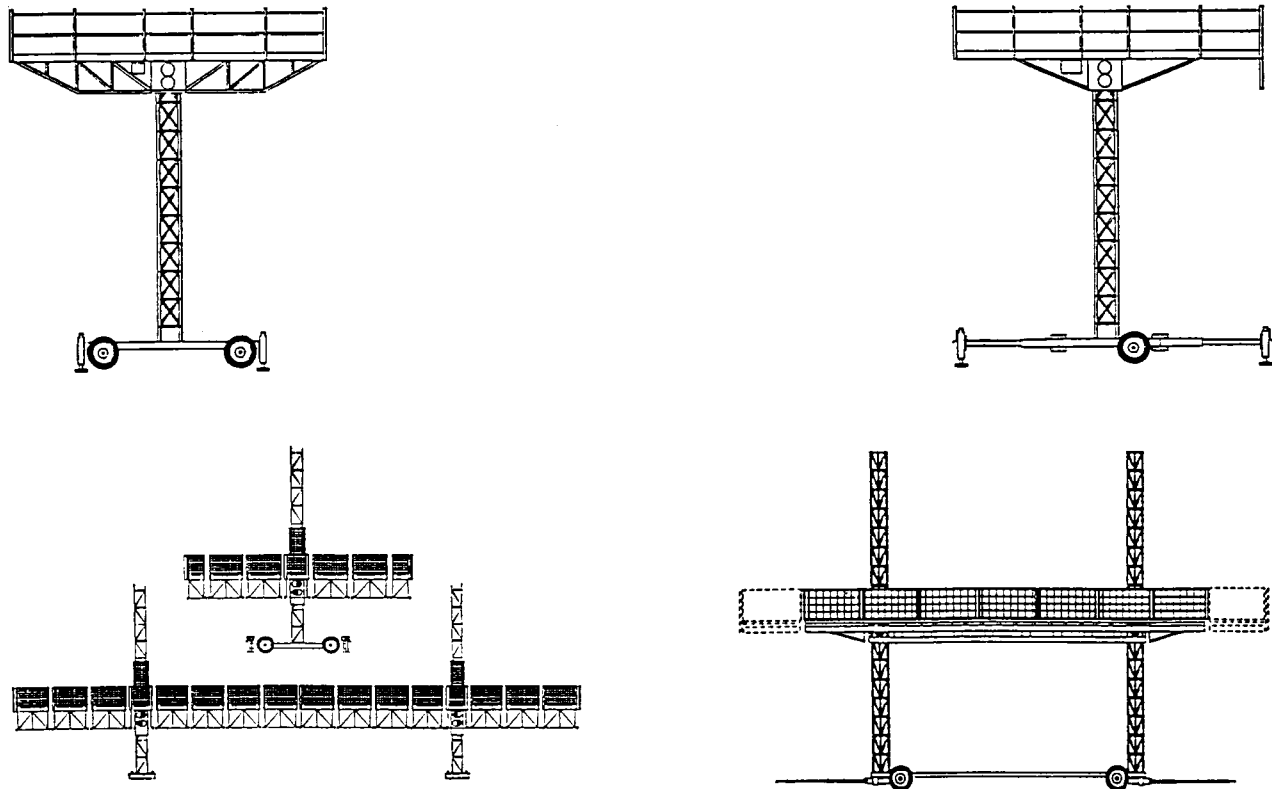
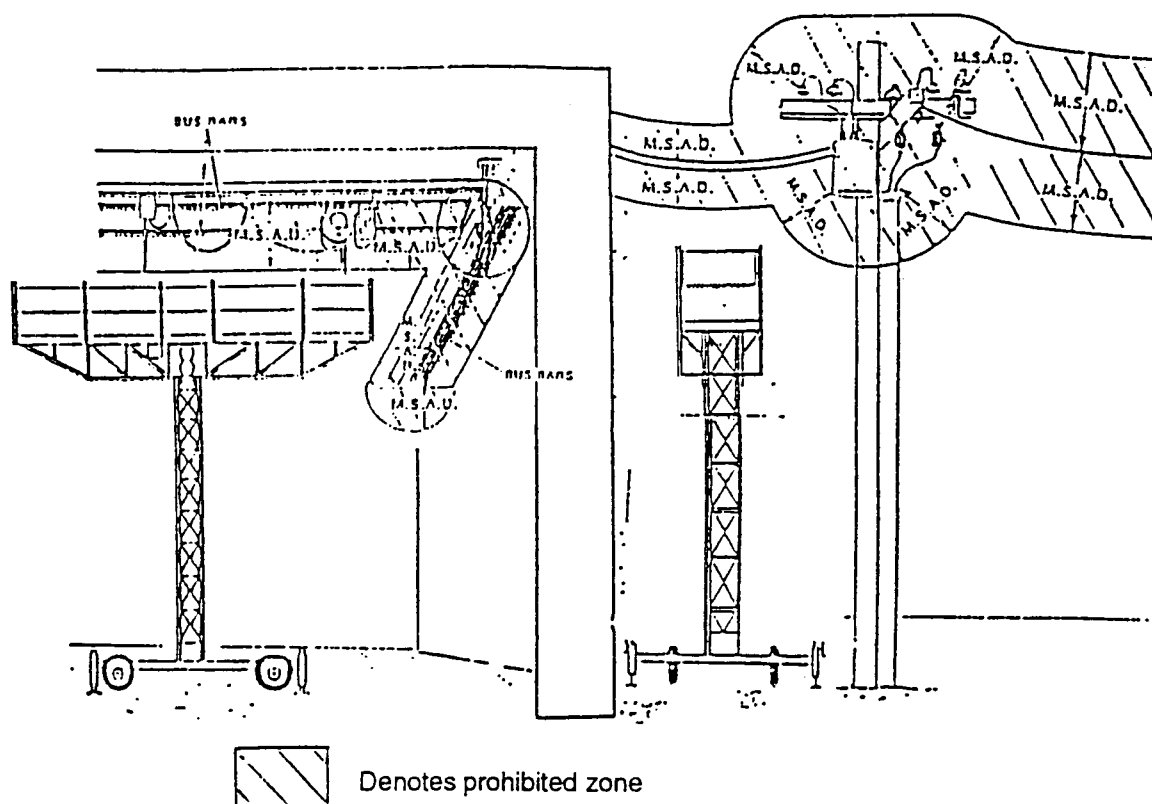


Figure 1 - Typical examples of equipment covered

Table 1 - Minimum safe approach distance (M.S.A.D.)
to energized (exposed or insulated) power lines

Voltage range (phase to phase)	Minimum safe approach distance	
	(Feet)	(Meters)
0 to 300V	Avoid Contact	
Over 300V to 50 kV	10	3.05
Over 50 kV to 200 kV	15	4.60
Over 200 kV to 350 kV	20	6.10
Over 350 kV to 500 kV	25	7.62
Over 500 kV to 750 kV	35	10.67
Over 750 kV to 1000 kV	45	13.72



- Danger:**
- Do not allow machine personnel or conductive materials inside prohibited zone.
 - Maintain M.S.A.D. from all energized lines and parts as well as those shown.
 - Assume all electrical parts and wires are energized unless known otherwise.
- Caution:**
- Diagrams shown are only for purposes of illustrating M.S.A.D. work positions, not all work positions.

Figure 2 - Minimum safe approach distance (MSAD)